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ABSTRACT

The Maine postsecondary education situation, the state's economy, and their interrelationships are considered. The analysis is based on interviews with leaders of Maine private enterprises, postsecondary institutions, professional and trade union organizations, and state government. An operational model for higher education and economic interaction is also presented, along with recommendations to guide public policy makers and leaders of private and public postsecondary education institutions. Postsecondary institutions are grouped and discussed according to the average length of time necessary to complete degree requirements, and by public versus private ownership. In addition, institutions are differentiated by the proportion of the student body drawn from out of state. Enrollment trends and employment within the public and private colleges are also analyzed. The economy is considered in terms of performance indicators by sectors and by specific commercial and industrial enterprises (e.g., textiles, potato products, banking, high technology). Finally, the condition of each sector of postsecondary education is assessed, along with training/education in state government and the relationship between organized labor and postsecondary education. (SW)

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PLANNING FOR THE 80's:

POST SECONDARY EDUCATION

and the

MAINE ECONOMY

Prepared for the

Post Secondary Education Commission of Maine

by

MAVRINAC/MARSH CONSULTANTS

with

MALLAR DEVELOPMENT SERVICES, INC.

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March, 1982

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PHOTO CREDITS: Peter Kingsley, Colby College Clock Tower;
John Ewing, Work Scenes

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INTRODUCTION

The role of education in the molding and the progress of society, and conversely, the role of society in the shaping of educational institutions and the orientation of their services, have long been intertwined. While education has historically been viewed as one of the more significant barometers of a society's development and future prospects, the very forces that shape and change society have also acted to require continual evaluation of the relevance of specific education offerings to society's needs.

A century ago, the United States was experiencing a fundamental change in lifestyle and work technologies as America moved into the industrial age. Simultaneously, higher education was reacting to and stimulating this change. The "classical" college, devoted to the Bible and to European culture and with a fixed curriculum, gave way to the "modern" college and university that focused on scientific research, training for new professions and occupations, broadening its traditional student body to include a wider strata of society and allowing more elective choice of courses.

Today, as America moves fully into the technetronic era, the dynamics operating within and upon society are again generating conflicts over what the specific purposes, goals and structures of higher education should be. It is no longer seen as sufficient to state that higher education has the broad purposes of teaching, research, and service. Rather, the relevant questions become those of the ends of teaching, the reasons for research, and the recipients of service.

Such evaluation is healthy, for it assures that need, not tradition, dictates the role of education to society.

This project, undertaken for the Post-Secondary Education Commission of Maine (PECOM), was designed to provide a perspective on the way in which Maine's economic life and her public and private post-secondary institutions are currently relating to each other. Inevitably a commentary coming from such a project will touch on many aspects of the life of institutions of higher education in this state that have been dealt with in studies of Maine higher education over the last fifteen years. But our particular stress here is on the dynamic elements in the economy and in higher education, and on the way in which the two sectors interact with each other. We are, putting it simply, concerned with the fit or lack of fit at the interface of the two sectors.

Our analysis begins with a static overview of the fundamental properties and characteristics of the post-secondary educational world in Maine, and of the economy of Maine looked at in a macro perspective. We then examine the formal and informal dynamic linkages operating today between these two sectors. Here we analyze the data produced from a set of case studies involving interviews with leaders of representative private enterprises in Maine, of public and private post-secondary institutions, of professional and trade union organizations, and of state government personnel operations. We then develop an optimum operational model for higher education and economic interaction, presenting the assumptions and guidelines that we believe naturally and desirably structure the interplay between the two. We proceed then to set out those critical facts which we think dominate interplay and relationship today. Following this we make recommendations which we believe should guide public policy makers and the leaders of private and public post-secondary education institutions in the shaping of their respective educational programs over the next several years.

We shape our analysis on the basis of our perception that the Maine economy is undergoing a profound modernization. We have been struck in the course of the many visits we have made to business and industrial enterprises in every part of Maine with the intensity and depth of that modernization. Maine is being caught up in and responding to the changes in thinking patterns and values generated in American society by the technetronic revolution.

It is not simply that there are new enterprises coming into the state which make products that fit into the high-technology market. It is much more than that. All through the private enterprise world in Maine, business leaders are reappraising their markets, restudying their production processes, redesigning organizations, and reassessing leadership styles and techniques. The nature of the work process is being subtly redefined: what the workplace is in the lives of those in it; how it relates to the local community; how it relates to the economic and social life of the region; how it fits into the national and international economic patterns; how it relates to the total life pattern of the worker.

What is also evident is that the very same forces reshaping Maine's economic structure and processes are shaping the higher education world in Maine. They are forcing institutions into deep and extensive re-evaluations of themselves and of their relationship to society and to the economy. They are taking what in many cases amounts to a tabula rasa-recasting of their own image and of the way they project themselves to the outside world.

As we have come through these direct contacts with real people in real world situations, to look at the interface between higher education and the Maine economy, it seems to us that the following are features of the developing relationship and of life within each sector that public policy shapers should in particular be aware of:

1. Changes in relationships between the two sectors and within each sector are taking place from the bottom-up. Reform, that is, is coming from the grass-roots. In individual economic and educational enterprises leadership is using the opportunities at hand to help the enterprise through what is in many cases a radical re-evaluation process.

2. The significant links between the world of higher education and the world of economic enterprise are grass-roots links.

3. New programs of educational service delivery are pragmatic responses to practical situations that have been understood and given practical shape by people working at the most local level in the economy and education.

4. A basic reassessment is taking place in higher education institutions which is leading to a recasting of the identity of these institutions and a reshaping of their self-image.

5. System-wide institutions begin to make more sense not as directors from the top-down or as authoritative integrators of processes, but as Facilitators, as spokesmen for education as a whole; as facilitators particularly in helping local education-economy interaction move toward practical program development.

6. Faculty and administration in higher education are looking for ways and need help in building new personal and institutional self-images and conveying those images outward effectively. Help is needed in faculty and administrator building of the skills needed to help in the formation of a viable, competitive local

economy through research, consultation, and instruction.

7. The Maine economic community wants and feels strongly that it needs more in the way of teaching, research, and consulting relationships with private and public post-secondary educational institutions. The Maine economy is increasingly a mix of large modern enterprises with a high-technology quality to them, and of enterprises still identifiable externally with the economy of an older era but increasingly caught up in the competitive pressures of a rapidly changing American and international economic order. The Maine Work Ethic succeeds in providing an almost irresistible base for attracting and keeping the Maine mix of commercial and industrial enterprises. But it is higher education with its general intellectual and cultural contribution to the society, and with its particular store of talent for helping enterprising workers, technicians and professionals maintain themselves abreast of developments in their field and grow professionally and personally, that will serve both as a morale factor in the life of Maine enterprises and as a factor in the kind of enterprise and the kind of skill-mix that come into and <u>stay</u> in Maine.

8. In sum, Maine people in the private and public sectors look to public and private post-secondary educational institutions in the state for help in making possible modern thinking being developed and applied to modern work situations in a way that is both compatible with fundamental Maine values and senses about work and the world, and that makes for a Maine product that is highly competitive in a dynamic national and world market.

Our recommendations are made in the same spirit and sense in which we have dealt with entrepreneurs, academicians, professionals, organizational leaders, and public officials. We make them as part of a pragmatic process characteristic of Americans that involves the on-going dialogue as the indispensable center of the decision-making process. We recognize that we are living in times of serious economic constraints where money is in short supply. What might be possible in a more prosperous period would not be now. But that is all the more reason for encouraging the kind of practical, grass-roots, non-self-conscious kinds of adjustments within institutions, among institutions, and between the academic and the economic world that we believe is the key to making post-secondary institutions in Maine more relevant to the economic and social life of our times.

SECTION I - Maine's Educational & Economic Profile

- A Description -

Part I - Post Secondary Education: The State of the Enterprise

Formal recognition of the importance of higher education to the development of Maine citizens first appeared in 1647, when Maine was but a Province of the Commonwealth of Massachusetts. In a law establishing the basis of the common school system of Massachusetts, section 6 stated that the "state may provide for a higher education and may support schools at public expense for fitting pupils for the colleges."[1] As is further pointed out, "the principle underlying these laws was not that the State should educate the child for the benefit of the child or its parents, but because the safety of the State demands that the child be educated."[2] (emphasis supplied)

However, it was not until 1794 that Maine's first post-secondary institution, Bowdoin College was chartered opening its doors in 1802 to provide higher education to 8 students. From these humble beginnings, such institutions in Maine have multiplied, and as of 1982, 52 are in operation to provide higher education of one form or another to the people of Maine.

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1. A Study of the History of Education in Maine and The Evaluation of our Present School System The State Superintendent of Public Schools in Maine (date unknown) p.9
2. Ibid

Even at their inception, the post-secondary institutions of Maine were a visible force on Maine's social and economic landscape. Leaders such as former Governor Gen. Joshua L. Chamberlain, Rev. Joseph McKeen, and others from the governmental, religious, business, legal and educational arenas participated actively in the administration of Maine's first colleges, facilitating integration of higher education into the working life of Maine.

In contrast, higher education in Maine today is a paradox. From any vantage point, it is a large enterprise in its totality, employing lots of people, involving lots of money, and owning lots of property. Yet somewhat surprisingly, it manages to maintain a low profile in the public eye most of the time.

Those who are directly involved with higher education, either as providers or as recipients of its services, are well aware of the range and depth of post-secondary offerings and are cognizant of its potential. However, it is not unreasonable to say that for a large portion of Maine's population, and for a significant number of its enterprises, Maine's post-secondary institutions are not always signficant factors in daily life.

Some of the low profile maintained could possibly be explained by the concentrated location of post-secondary establishments. Although a commanding force in terms of revenues, expenditures, assets, and employees, the 52 institutions enrolling students and employing workers are situated in only 31 of Maine's 494 municipalities - and

a large majority of these are in the southwest of the state. Of these, only ten municipalities are home to more than one post-secondary school of any sort.

The number of Maine institutions for higher learning is relatively small for New England, as only Rhode Island (by far the smallest state), and Vermont (by far the most rural), have fewer. Nonetheless, with all but a handful of the state's 50-odd accredited colleges and licensed proprietary schools within the I-95 corridor where 70% of Maine's inhabitants live, no one can claim that the state's post-secondary education system is inaccessible to the majority of Maine's residents, although obviously access is more difficult for non-corridor residents.

All in all, perception of accessibility and relevance may well be more dependent on the psychological elements of presence than on the physical elements.

A. Types of Post-Secondary Educational Institutions in Maine

Post-secondary education as an industry does more than engage substantial numbers of people and enrich the state's economy. It sustains several organizational and operating styles, resulting from a mix of institutional traditions and philosophy, preferences of institutional management, and uses made of the institutions by Maine's students. Although the orientation of an educational institution was formerly defined solely on the basis of private and public ownership, that clear line of demarcation is no longer the only criterion determining an institution's operating style and philosophy.

The following classifications are presented here to provide a means for a preliminary structuring of the world of higher education. Obviously the placement of institutions within these categories is not hard and fast over time, but rather allows the grouping of them in subdivisions of common purpose, structure, and student body.

1. Proprietary Schools

Taken together, the institutions which provide instruction beyond high school in Maine display an interesting configuration. Approximately one-third of them (16) are proprietary technical or commercial schools--privately owned and in operation on a "for profit" basis. (In addition to these, 15 others located in other states have been licensed

by the Division of Higher Education Services to recruit enrollees in Maine to move to the school's home base to study). Licensed by the State of Maine, able to receive federal veterans' benefits for those students who qualify, associated nationally to lobby and to police the practices of member schools, these institutions are otherwise a diverse lot. As Table 1 shows, six of them are flight schools, while the others offer instruction ranging from dog grooming to bar review. Their unifying characteristic is that they are small, sharply focused, practical and job oriented. Closest to the marketplace of all post-secondary institutions, their payoff and continued success lies in the graduate's success in the labor market, as these institutions grant no degrees.

2. Institutions Granting Associate Degrees

Post-secondary education in Maine becomes more formalized at this step with the introduction of institutions that grant degrees, which only the State Legislature can authorize an institution to do. This category also marks the entrance of public institutions of higher education.

There are 22 institutions offering two-year programs leading to an associate degree. In the private arena, there are four two-year degree granting institutions, and four private four-year colleges that also offer two-year programs, of which two have several branches. Public offerings include the state's six vocational technical institutes (VTI's), the York County Community College Service (a joint venture between the

TABLE 1

POST-SECONDARY INSTITUTIONS IN MAINE

1981 - 1982

Proprietary Schools (16)

Air Tech Flight School	Presque Isle	Flying School
Air Tech, Inc.	Limerick	" "
Central Maine Flying Service, Inc.	Old Town	" "
Larson's Flying Service	Houlton	" "
Maine Aviation Corp.	Portland	" "
Maine Instrument Flight School	Augusta	" "
Androscoggin Educational Aid Center	Brunswick	Correspondence S
Northern New England Tutorial System	Bowdoin	"
Bangor Computer Processing School	Brewer	Computer Proc.
Landing Boatshop	Kennebunkport	Boat Building
Salt Boatbuilding School	"	" "
Yacht Design Institute	Brooklin	" "
Shelter Institute	Bath	Homebuilding
Fox School of Photograph	Portland	Photography
SMH Maine Bar Review	Yarmouth	Bar Review
Yellow Brick Road School of Dog Grooming	N. Windham	Dog Grooming

2 Year Degree Granting Schools (11)

Andover College	Portland
Beal College	Bangor
Casco Bay College	Portland
Mid-State Business School	Augusta
York County Community College Service	Sanford
Central Maine VTI	Auburn
Eastern Maine VTI	Bangor
Kennebec Valley VTI	Waterville
Northern Maine VTI	Presque Isle
Southern Maine VTI	South Portland
Washington County VTI	Calais

2 & 4 Year Degree Granting Schools (11)

Husson College*	Bangor
Thomas College*	Waterville
Unity College	Unity
Westbrook College	Portland
University of Maine	Augusta
" " "	Farmington
" " "	Fort Kent
" " "	Machias
" " " *	Orono
" " "	Presque Isle
University of Southern Maine*	Portland

*Graduate Programs

Post-Secondary Institutions in Maine

(continued)

4 Year Degree Granting Schools (11)

Bangor Theological Seminary*	Bangor
Bates College	Lewiston
Bowdoin College	Brunswick
Colby College	Waterville
College of the Atlantic	Bar Harbor
Maine Maritime Academy	Castine
Nasson College	Springvale
New England Baptist Bible College	Portland
Portland School of Art	Portland
St. Joseph's College	North Windham
University of New England*	Biddeford

Out of State Schools with Maine Branches

Embry-Riddle Aeronautical University*	Limestone
New Hampshire College*	Brunswick
University of Southern California*	Limestone

*Graduate Programs

University of Southern Maine and the Southern Maine VTI), and each of the seven campuses of the University of Maine system and their respective branches.

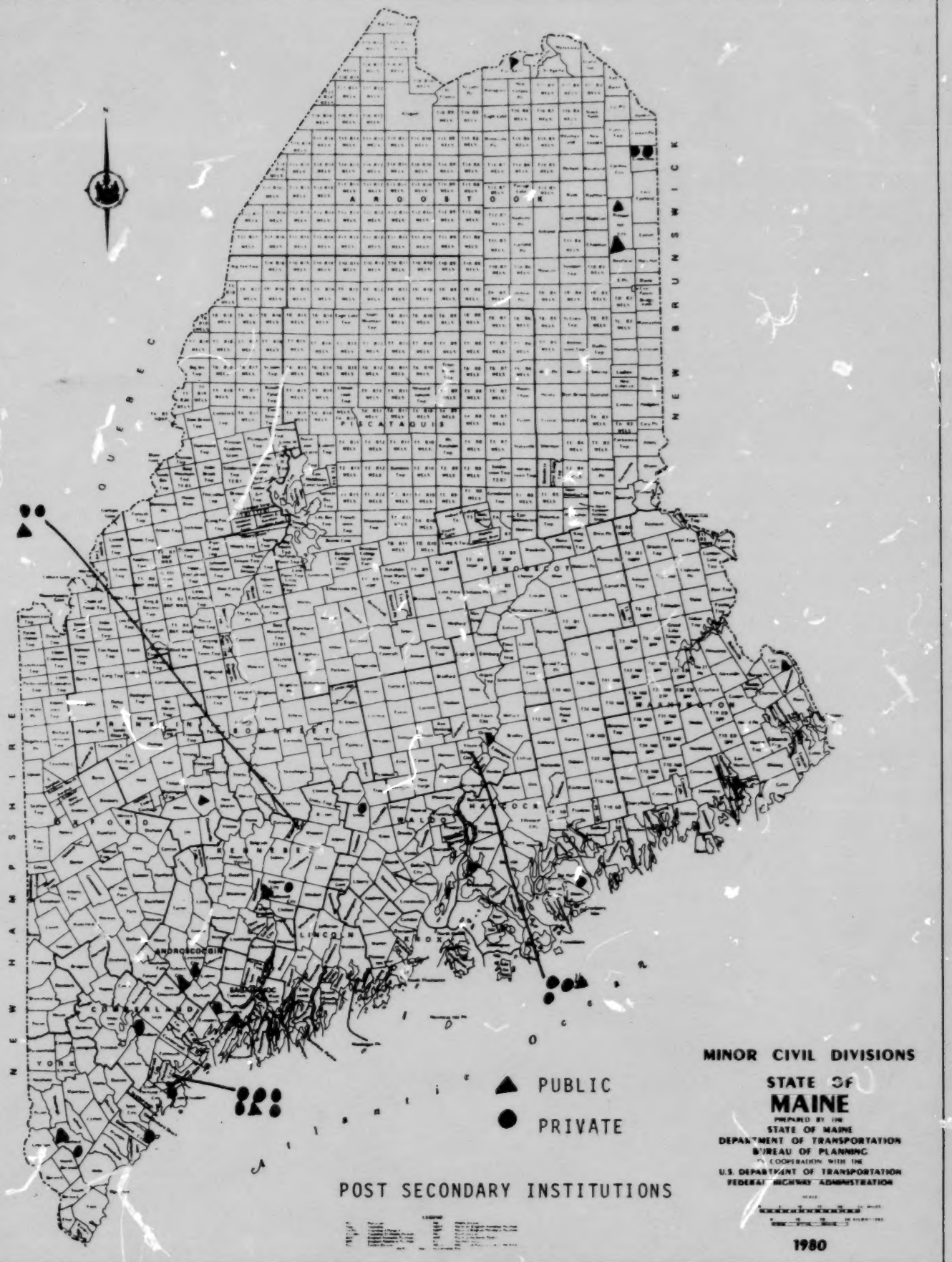
The two-year programs at these 22 schools almost without exception have a technical, nursing, or commercial focus. Among the programs offered are those preparing for business or nursing careers, training for service technologies and traditional crafts (bricklaying, housewiring, etc.) and developing skills in the automobile and basic electronic repair area.

While teaching techniques and instructional focus are oriented to developing "hands-on" familiarity with the materials and equipment dealt with in the speciality, these institutions increasingly tend to stress their concern for helping the student develop a theoretical base necessary for keeping abreast of developments in his field and a broad sense of the craft and related crafts needed for eventual taking on of leadership responsibilities in the shop or facility.

3. Institutions Granting Baccalaureate Degrees

Colleges offering 4 year programs form the sector that for the general public is the most characteristic and the most familiar element of Maine's post-secondary educational organization.

This group of 22 contains institutions classified generally as comprehensive universities and colleges, as liberal arts colleges, and as professional schools and other specialized institutions.


AROOSTOOK
PISCATAQUIS
PENOBSCOT
WASHINGTON
HANCOCK
KNOX
WALDO
LINCOLN
SAGADAHOC
ANDROSCOGGIN
CUMBERLAND
YORK
OXFORD
FRANKLIN
SOMERSET
NEW HAMPSHIRE
QUEBEC
NEW BRUNSWICK
PUBLIC
PRIVATE
POST SECONDARY INSTITUTIONS
MINOR CIVIL DIVISIONS
STATE OF
MAINE
PREPARED BY THE
STATE OF MAINE
DEPARTMENT OF TRANSPORTATION
BUREAU OF PLANNING
IN COOPERATION WITH THE
U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
1980

The traditional definition of a liberal arts college is one whose educational structure, orientation, and purpose are directed towards the classical liberal arts education, placing supreme emphasis on "cultivation of the intellect, on rationality, (and) on attempted objectivity based on facts and logical argument."[3] The program of studies meeting this purpose aims at disciplining the student's ability to assess and criticize the social institutions that shape society, and to do so from a broad understanding of the humanities, social sciences, and natural sciences.

Comprehensive institutions are ones offering at least one professional or occupation program such as engineering, business administration, teacher training, or nursing in addition to a liberal arts program.

Obviously, there is not always a clear cut distinction between these two groups, especially with the increasing number of liberal arts colleges offering pre-professional programs such as pre-law or pre-medicine within their liberal arts framework. The distinction is most often made based on a combination of objective review of the number of various degrees conferred in any one year, and the subjective statement of purpose made by the institution in question. In addition, liberal arts colleges are usually characterized by the fact that a large proportion of their graduates eventually continue their training in traditional graduate studies.

Professional schools and other specialized institutions awarding bachelor's degrees are ones whose purpose is narrowly directed towards one

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3. Reform on Campus - Changing Students, Changing Academic Programs - The Carnegie Commission on Higher Education. June, 1972. (Contained in A Digest of Report of the Carnegie Commission on Higher Education, p. 125)

or two fields of study. Examples include theological seminaries, schools of business and management, schools of engineering and technology, and maritime academies.

While the different orientations within this category of colleges offering 4 year degrees result in more or less specific vocational focusing by the student, the purpose of all of these institutions is much more directed towards a broad learning experience than the proprietary schools and two year colleges outlined above.

The following classification of individual institutions into these three categories just described is presented below for the purpose of showing the diversity of focus and self-image existing within this group of 22 four year colleges. Obviously, such groupings are not hard and fast, as curriculum changes occur regularly within institutions. Nonetheless, the grouping provides benchmarks against which to measure change.

In the private sector, Bowdoin, Bates and Colby, with regional--indeed national appeal, remain firmly rooted within the liberal arts tradition, adjusting to current fashion only to the extent of offering a few pre-professional courses in the fields of law and medicine, and offering the courses necessary to prepare undergraduates for certification as school teachers. Nasson College and the College of the Atlantic also fall into this category, and Unity College, and the Uni-

versity of New England have also been included. The latter two are included based on a definition of comprehensive colleges and universities prepared in 1973 by the staff of the Carnegie Commission on Higher Education that requires enrollments of at least 1,500 students in private institutions and at least 1,000 students in public institutions as a firm indication of true comprehensiveness.[4] Thus, although the two offer programs not traditionally viewed as part of a liberal arts curriculum, their smaller enrollments dictate inclusion in this liberal arts category as opposed to the comprehensive category.

Only one private institution in Maine can be classified as a comprehensive college under the above definitions. St. Joseph's College, a Catholic institution, runs an external degree program for some 4,500 students, in addition to providing four-year on-campus degree programs for some 450 other students. (The external degree program allows the student to complete the majority of his studies off-campus in a non-classroom setting. The large majority of these students reside in other states.) In addition to a liberal arts curriculum, degree programs in business administration and nursing are offered.

There are six private professional schools and other specialized institutions currently operating in Maine. Husson College and Thomas College award both bachelor's and master's degrees in business, concentrating their curriculum entirely in this field. The Portland School of Art awards only a bachelor of Fine Arts, and the New England Baptist Bible College awards a bachelor's degree only in religious education. Westbrook specializes in the fields of business administration and medical technology, while Bangor Theological Seminary offers a degree in Pre-Theological Studies.

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4. A Classification of Institutions of Higher Education, The Carnegie Commission Staff. 1973.

The seven campuses of the University of Maine, and the Maine Maritime Academy comprise the public sector offering of baccalaureate degrees.

The University of Maine of Fort Kent (UMFK), and the University of Maine at Machias (UMM) offer no graduate programs, and have respective enrollments of less than 1,000, thereby classifying them as liberal arts colleges, according to the definition offered above. Although between them they offer programs in teacher training, nursing, and business administration, their enrollment levels prevent them from being classified as comprehensive institutions.

The University of Maine at Farmington (UMF), the University of Orono (UMO), the University of Maine at Presque Isle (UMPI) and the University of Southern Maine (USM) are classified here as comprehensive institutions. UMF, in addition to seven liberal arts degrees, offers specialized courses in a variety of educational orientations, including such programs as speech correction. UMO, the largest campus of the University of Maine system, offers a liberal arts program, an engineering program, an education program, a business administration program and others. UMPI offers a liberal arts program, teacher education, and environmental studies, while USM has degree programs in liberal arts, business, nursing, and education.

The University of Maine of Augusta (UMA) has been classified here as a professional or specialized school, as bachelor's degrees are offered only in business or public administration. The Maine Maritime Academy is also included under this heading.

4. Maine Institutions Granting Advanced Degrees

Included in this category are six institutions granting master's and/or doctoral degrees.

In the private sector, Husson College and Thomas College award Master's degrees in business. Bangor Theological Seminary offers a Master's degree in Divinity and the University of New England offers a Doctorate in Osteopathic Medicine.

In the public sector, two campuses of the University of Maine System supply advanced degrees. UMO offers Master's and Doctorate degrees in six fields of the arts and sciences, in several engineering, in education, and in several fields of the life sciences and agriculture, and also offers a Master's degree in Business Administration. USM offers graduate degrees in five fields of education, in business and in law.

5. Maine Branches of Out-of State Colleges

While not Maine institutions, these schools obviously add to the range of higher educational offerings available to Maine citizens. Three schools offer courses during the 1981-1982 academic year at two locations in Maine. The University of Southern California and Embry-Riddle Aeronautical University offer a range of programs at Loring Air Force Base in Limestone in aviation related subjects, and in systems management leading to Associate, Bachelor's and Master's degrees. Courses are clearly developed for the Air Force personnel located at Loring, although they are also available to the eligible public.

New Hampshire College has a branch in Brunswick offering Associate, Bachelor's and Master's degrees in the management and business fields.

THE EXPORT* SEGMENT VS. THE SERVICE SEGMENT

To this point, institutions have been grouped by purpose of study, by the average length of time necessary to complete degree requirements, and by public versus private ownership. In addition to these divisions, post-secondary schools can be differentiated by the proportion of the student body drawn from out of state.

A rough benchmark providing a measure for such a division is that any school drawing more than half of its student body from outside Maine is an export institution. Although all of the private schools operating in Maine are usually believed to be export institutions, close examination of enrollment records finds that division by ownership is not a sufficient means of defining this group. Not all private schools are export institutions. Rather, the more telling difference appears between the traditional liberal arts institutions and the more open and comprehensive ones.

The former are residential colleges, selective in admissions, day-time, full-time, regional or national in their orientation, and usually draw the majority of their students from out of state. The latter have significant proportions of commuting students, regularly accept part-time and unclassified students, have a state or local orientation, and draw the majority of their students from Maine. While public participation and oversight have usually directed the public institutions to more flexible programming and admissions standards, some public institutions have certain traditional characteristics, while an increasing number of private institutions,

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*The term "export" is used because the education of non-Maine students is financed by out of state money. The tourist industry is also an "export" industry for those visitors from out of state who vacation in Maine, bringing their money with them.

especially smaller ones, operate very much in an open and flexible style.

The difference is so clear and striking that it divides the educational enterprises in Maine into two distinct segments. The traditional establishments form, on the one hand, an export segment, drawing students and their money primarily from out of state, instructing the students and spending their money within the state. The less traditional ones are essentially a service segment for Maine, attracting students and their money primarily from their homes in Maine to their campuses, instructing the students and spending their money in Maine. Their product is a group of residents more educated than before, and so presumably more employable and productive.

Each segment obviously contributes heavily to the economic vitality of the state through the circulation and distribution throughout the economy of both "new" (out of state) money, and Maine money. In addition, the service segment of the post-secondary system produces both a higher percentage and a great absolute number of trained graduates remaining in Maine to service the Maine economy and society.

According to these definitions, nine schools compose the roster of export institutions, based on fall 1981 enrollment data. As would be expected, Bowdoin, Bates, and Colby are included, as are the University of New England and the Bangor Theological Seminary. The College of the Atlantic, Nasson, St. Joseph's and Unity College also qualify.

In examining this list against the divisions of four-year colleges outlined earlier, it is evident that all of the seven private, liberal

arts schools so classified in Part A are export institutions, enrolling more out of state students than Mainers in their ranks. Unity College is the only one of these seven offering two year associate degree programs. The remaining two export institutions, St. Joseph's College, classified earlier as a comprehensive institution and Bangor Theological Seminary, classified as a professional/specialized institution, are more career specific in their course offerings, yet retain a liberal arts framework and philosophy. The nine export schools are thus heavily weighted towards the traditional, full-time four-year, liberal arts mode of instruction, educating students to operate in their later careers through a multidisciplinary approach to problem resolution.

The service sector is composed of the remaining 43 post-secondary institutions in Maine. These include the seven campuses of the University of Maine, Maine Maritime Academy, the 6 VTI's, YCCC, four private two-year colleges, three private schools offering two and four-year degrees, two private specialized schools offering four-year degrees, 16 private proprietary schools, and three branches of out of state schools.

In reviewing the offerings of the service sector, two facts emerge. When measured in terms of numbers of schools, this sector is largely composed of two-year associate degree programs and certificate programs, concentrated in technical, health, and commercial subject areas. However, when measured in terms of total numbers of students, the University of Maine system and professional and specialized schools

such as Thomas and Husson capture the majority of enrollments, educating students in a wide range of liberal arts and professional programs.

In sum, the export segment largely provides a traditional, four-year liberal arts education to non-residents who come to Maine specifically to attend these institutions.

The service sector, the larger of the two, provides a broader spectrum of educational offerings primarly to Maine residents, with a heavy slant on professional, technical, and commercial programs, supplemented by liberal arts studies.

B. Enrollment Figures for Maine Post-Secondary Schools

As Table 2 shows, enrollments in Maine's post-secondary institutions have been increasing during the past 26 years. Reflecting national trends, and fueled by population growth, rising average income levels, and the demand for a more highly trained workforce, enrollments in Maine's schools of higher education have grown from some 10,000 in 1957 to approximately 50,000* in the fall of 1981, an increase of 400%.

In addition to these students, some 1,700 other students are estimated to be currently enrolled in some type of private vocational, commercial or technical program, including nursing, based on reports prepared by high schools on Maine graduates' plans. This figure includes both proprietary schools and also nursing schools run by various hospitals such as Mercy Hospital and Central Maine Medical Center. This number could well be higher, as these schools do not regularly nor systematically report their enrollments, and as some programs such as flying do not necessarily operate on a standard academic schedule.

Summing these two figures allows one to safely say that at <u>least</u> 52,000 people are enrolled in at least one course offered by a Maine post-secondary institution.

As striking as the increase in total enrollment figures is, the trends in the component parts of this total reflect even more pointedly

*This figures includes some 4,500 students enrolled in St. Joseph's College external degree program, in which students undertake their studies at home. The great majority of these students live out of state.

TABLE 2

ENROLLMENT TRENDS IN POST SECONDARY EDUCATION

TOTAL ENROLLMENTS - ALL STUDENTS

TYPE OF INSTITUTION	1957	1962	1967	1971	1972	1974	1977	1979	1981
Private - 2 yr.	20	20	190	276	218	572	927	1,192	1,305
Private-2 & 4 Yr.	807	1,448	2,161	2,389	2,111	2,245	3,188	3,958	3,962
Private - 4 Yr.	3,480	4,371	5,857	6,132	6,218	6,852	6,846*	6,569*	6,713*
Public - U.ME. System (includes YCCC)	5,643	7,160	12,144	15,171	15,379	26,234	27,812	29,367	28,487
Public - 4 Yr. (MMA)	183	322	546	486	475	536	647	643	645
Public - 2 Yr. (6 VIT's)	253	311	1,117	1,109	2,094	2,969	3,138	3,721	5,570
Subtotal-Private	4,307	5,839	8,208	8,797	8,547	9,669	10,961*	11,719*	11,980*
Subtotal-Public	6,079	7,793	13,807	16,766	17,948	29,739	31,597	33,731	34,702
TOTAL ENROLLMENTS	10,386	13,632	22,015	25,563	26,495	39,408	42,558*	45,450*	46,682*

*Does not include enrollment figures for St. Joseph's College External Degree Program. 1981-82 enrollment is 4,500.

SOURCE: DOECS - Division of Higher Education Services; HEGIS REPORTS

a broadening student base for higher education as the traditional, full-time 18 to 22 year old student pursuing a four-year degree is joined by an older, part-time student not necessarily pursuing a bachelor degree.

Beginning with schools offering two year associate degrees, the trend towards increasing numbers of students seeking specific skill-oriented training emerges clearly. Included in this category are the four private two-year colleges, and six VTIs, the University of Maine system, YCCC, and four private four-year colleges that also offer associate degrees.

Enrollment data collected as part of this study indicates that the fastest growing sector of Maine post-secondary institutions is the group of 2 year colleges and the VTIs. Specifically, data shows a dramatic increase of 34% in total enrollments at the private two-year colleges, rising from 927 students in 1977 to 1,204 in 1981, as compared to a post-secondary systemwide increase of 10%. This 34% increase is overshadowed by the 79% rise in total enrollments at the VTIs during this same time period, from 3,138 to 5,570.

In addition to these strictly two-year colleges, the University of Maine system (including York County Community College and Bangor Community College) and four private four-year colleges also offer two-year programs leading to an associate degree. A survey of the University of

Maine campuses undertaken by the consultant indicates that almost 5500 students, or 27%, of the 20,000 students currently enrolled at the university undergradute level are registered in an associate degree program.

The number of students in such programs at the private four-year colleges was less readily aggregated, but it can safely be said that at least 1300 students are registered in such programs at these schools.

Totalling these numbers, one arrives at a figure of at minimum 13,000 students enrolled in associate degree programs at these 22 schools. This figure represents 43% of their total undergraduate enrollments of almost 30,000, and 25% of total 1981 enrollments at all schools of higher education.

The undergraduate enrollment trend at schools offering four-year programs leading to a bachelor degree again indicate changing student body. Undergraduate degree enrollments at the private, traditional four-year colleges increased by only .5% to 6,200 from 1977-1981, while the four private colleges offering both two and four-year degree programs increased their undergraduate degree enrollments by some .7% to approximately 3,000 during this period. The seven University of Maine campuses, which offer both two and four-year programs increased their undergraduate degree enroll by 7% to almost 20,000 during this time span. The only public strictly four year institution, Maine Maritime Academy, remained at a fairly constant level of some 650 students.

In sum, undergraduate enrollments at schools offering four-year degree programs increased from 28,184 to 29,429, or 4% from 1977 to 1981.

This figure represents 58% of total enrollments in non-proprietary schools in 1981, down from 59% of all enrollments in 1977, and 81% of all undergraduate degree enrollments, down from 84% in 1977. It must be remembered that these figures include students enrolled in associate degree programs at four private and seven public schools offering both two and four-year degree programs.

Students enrolled in graduate or first professional degree (e.g. law) programs totaled slightly over 2,000 in 1981, up 2% from 1977. Graduate students represented 4% of the total post-secondary enrollment in 1981, whereas they constituted 5% of this population in 1977. The largest graduate enrollments, as would be expected, are found at the University of Southern Maine and at the Orono campus. Graduate programs are also offered at Bangor Theological Seminary, Husson, Thomas and UNE.

Although enrollments in schools offering four-year degrees still represent the majority of total higher education enrollments, the figures above testify to the growing entrance of more students into two-year programs, and the consequent trend towards a more diversified student body.

In addition to this movement towards two-year programs, another student group quietly exists as a significant portion of Maine's total post-secondary student body. "Unclassified students", denoting those people taking one or more classes, yet not registered for a degree program, represent roughly 8,300 people, up 1% in number from 1977, and representing 23% of the undergraduate student population, and 18% of the total enrollments in 1981. These students, usually

older, part-time enrollees, are most common in the university system, where they constitute an average of 32% of undergraduate degree enrollments. Their numbers range from a high equalling 126% of undergraduate degree enrollments at UMA to a low equalling 13% of such enrollments at UMO. The vast majority--97%--of unclassified students thus attend those schools defined as the service sector of Maine higher education. The nine export institutions enrolled only 3% of the 8,200 unclassified students in 1981.

The motivations stimulating the participation of this group have never been examined in depth, but are likely a combination of general life-long learning interest motivated by personal desire, or a specific job or career related need that the individual seeks to fill. Examples of the latter would include participation in such classes as accounting, bookkeeping, management training, statistics, or technical writing, while the former motivation might lead the student to a wide range of classes such as art appreciation, languages, history, or literature.

A portion of this group of unclassified students is composed of those people such as teachers who are required by law or by practice to complete a certain number of continuing education units within their profession. While some schools separately count such students, the practice is not widespread enough nor consistent enough to determine what percent of the unclassified population these people represent. Suffice to say that as requirements relating to the need for continual updating of skills continues, following trends in Massachusetts and the nation, this unclassified portion of students will grow.

This group of unclassified students, along with the part-time students, represents a significant force in higher education enrollment--an asset both for the higher education industry, and for the economy of Maine. Their presence will become more noticeable, and also more important to an institution's success, as decreases in the numbers of high school graduates continue. Although the unclassified population remained virtually unchanged in number from 1977 to 1981, part-time enrollment rose some 31% during these years, and now represents 34% of the total 1981 enrollment. As noted earlier, these students are largely older students, and generally are employed at least part-time.

An earlier report prepared for the Post-Secondary Education Commission also stressed the importance of this group of older students as a force in Maine's post-secondary institutions, noting some 10,000 adults enrolled at campuses of the University of Maine in 1978. Nationally, the proportion of students 35 years of age or older attending programs beyond high school went from 10.4% in 1974 to 11.7% in 1978, and is projected to further increase to 44% of the total enrollment by 1988. This group has been classified as the fastest growing segment of higher education.*

During interviews conducted by the consultant at various campuses of the University of Maine, this national trend was supported by findings that the average age of the University of Maine, Augusta, is 30 while the average age at Southern Maine campus is 26. Obviously, some of these older students are pursuing graduate degrees, but as enrollment data presented earlier indicates, graduate students cannot account for all of this trend. Rather, the increasing importance of life-long learning

*"The Current and Projected Economic Impact of Post-Secondary Education on the State of Maine" Academic Research and Consultant Service. 2/81. p.14.

to successful career and personal development is being actualized by unclassified students pursuing one or more courses for a specific purpose, and by part-time students pursuing degrees. Both the individual and the Maine economy benefit from such updating of skills by providing a state-of-the-art employee to industry.

While the motivations, and the consequent choice of courses may vary, the fact remains that a core of Maine citizens is actively engaged in broadening their knowledge of, and perspective on, specific skills.

Table 3 presents the relevant statistics describing the trends outlined above. It can be seen that the percentage contribution to the total of the undergraduate, graduate and unclassified populations remained relatively constant over the four years between 1977 and 1981. It is interesting to note that the 4,000-odd increase in total enrollments was generated largely by an increase in the enrollments at the undergraduate level, and that there was a sizeable increase, almost matching the total system increase, in the number of part-time students.

Enrollments at private schools in 1981 totaled slightly over 16,600* or 32% of all enrollments, while the public sector captured 35,000 students, or 68% of the total. Maine students accounted for about 39,000 of the 52,000 total enrollment, with out-of-state students accounting for the remaining 13,000.

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*Includes 4,500 students enrolled in St. Joseph's College external degree program.

TABLE 3-A

ENROLLMENTS

		UNDER GRADUATE	GRADUATE AND 1st PROFESSIONAL	UNCLASSIFIED	TOTAL FT	TOTAL PT	TOTAL
PRIVATE 2 Yr. (4)	1977	820	0	107	764	163	927
	1981	1,244	0	61	971	334	1,305
PRIVATE 2&4 yr. (4)	1977	3,009	48	131	2,467	721	3,188
	1981	3,030	173	759	1,896	2,066	3,962
PRIVATE 4 yr. (10)	1977	6,157	98	591	6,689	227	6,846*
	1981	6,186	276	251	6,469	244	6,713*
PUBLIC-UME SYSTEM (includes YCCC)	1977	19,096	1,871	6,845	17,410	10,402	27,812
	1981	20,362	1,611	6,514	17,870	10,617	28,487
PUBLIC 4 yr. (MMA)	1977	647	0	0	647	0	647
	1981	645	0	0	645	0	645
PUBLIC 2 yr. VTI'S (6)	1977	2,649	0	489	2,649	489	3,138
	1981	4,884	0	686	3,086	2,484	5,570
SUB-TOTAL PRIVATE	1977	9,986	146	829	9,850	1,111	10,961*
	1981	10,460	449	1,071	9,336	2,644	11,980*
SUB-TOTAL PUBLIC	1977	23,392	1,871	7,334	20,706	10,891	31,597
	1981	25,891	1,611	7,200	21,601	13,101	34,702
TOTAL	1977	33,378	2,017	8,163	30,556	12,002	42,558*
	1981	36,351	2,060	8,271	30,937	15,745	46,682*
% change 1977-1981		12%	2%	1%	1%	31%	10%

*Does not include external degree students at St. Joseph's College. Approximate enrollment 1982 is 4,500.

SOURCE: DOECS - Division of Higher Education Services; HEGIS Reports.

TABLE 3-B

(SUMMARY)

	1977	% OF TOTAL ENROLLMENT	1981	% OF TOTAL ENROLLMENT	% CHANGE 1977-1981
UNDERGRADUATES	32,378 (100%)	76%	36,351 (100%)	78%	12%
PRIVATE	9,986 (31%)		10,460 (29%)		5%
PUBLIC	22,392 (69%)		25,891 (71%)		16%
GRADUATES & 1st PROFESSIONAL	2,017 (100%)	5%	2,060 (100%)	4%	2%
PRIVATE	146 (7%)		449 (22%)		208%
PUBLIC	1,871 (93%)		1,611 (78%)		- 14%
UNCLASSIFIED	8,163 (100%)	19%	8,271 (100%)	18%	1%
PRIVATE	829 (10%)		1,071 (13%)		29%
PUBLIC	7,334 (90%)		7,200 (87%)		- 2%
FULL-TIME	30,556 (100%)	72%	30,937 (100%)	66%	1%
PRIVATE	9,850 (32%)		9,336 (30%)		- 5%
PUBLIC	20,706 (68%)		21,601 (70%)		4%
PART-TIME	12,002 (100%)	28%	15,745 (100%)	34%	31%
PRIVATE	1,111 (9%)		2,644 (17%)		138%
PUBLIC	10,891 (91%)		13,101 (83%)		20%
TOTAL	42,558* (100%)	100%	46,682* (100%)	100%	10%
PRIVATE	10,961 (26%)		11,980 (26%)		9%
PUBLIC	31,597 (74%)		34,702 (74%)		10%

Enrollments of Non-Residents

Enrollment of first-time freshmen from out-of-state at the nine schools defined as export institutions in Part A* totaled slightly over 1,450 in the fall of 1981, as reported by the Department of Education and Cultural Services, representing 82% of their total entering freshman classes. Comparatively, out-of-state freshmen represented slightly over 1,305 in 1980, or 85% of total freshman enrollments at these institutions in that year.

Of course, each of these nine schools also enrolls students from Maine. In each, however, such students are a minority--more often than not, a small one. While Maine citizens constitute some 75% of the state's total post-secondary student population, they represent only 18% of the fall 1981 enrollments at the 9 export schools. The largest enrollment of out-of-state students at any Maine school - 556 - is at Orono but it is swamped by 1,859 Maine classmates.

Conversely, although not qualifying as export schools, almost all of the remaining post-secondary institutions in Maine have at least one out-of-state student in their ranks. In what has been defined here as the service sector, (excluding the proprietary schools for which data are not available), one finds a reported total of approximately 1,050 non-Maine freshmen, representing 12% of these schools' freshman enrollments for the fall of 1981.

One deliberate factor in Maine's enrollment of out-of-staters in the state's public institutions is the New England Regional Student Program (NERSP). This program rests on a formal, legal, compact established in the 1950's among the governments of the six New England states. Under NERSP, students from any one of the six states are allowed to enroll at close to in-state tuition at a public

*Bowdoin, Bates, Colby, UNE, Bangor Theological, College of the Atlantic, Nasson, Unity, St. Joseph's.

institution in any of the other six states in order to pursue a course of study not available in the home state, thereby providing an intelligent and prudent mechanism for discouraging unnecessary duplication of public post-secondary programs throughout New England. Some 500 students enrolled in Maine's University system and Vocational Technical Institutes in 1980, representing 59% of the out-of-state freshman population at Maine's public schools of higher education. Conversely, some 254 Maine students enrolled at schools elsewhere in New England during the 1980-1981 academic year. (The largest single concentration was at the University of Rhode Island, where 69 students enrolled, chiefly in the school of pharmacology).

In all, some 2,500 freshman students came to Maine in the fall of 1981 to begin their higher education at Maine schools. Unfortunately, data on students' place of residence is collected only for entering freshmen, thus not allowing precise tabulation of all out-of-state students in Maine during any one given year. However, in reviewing the data, one finds that more than half of the incoming freshmen from out-of-state attend one of the nine export schools, of which all but Unity College offer only four-year programs. By weighing the number of entering freshmen at each post-secondary school by the number of years required on average to complete degree requirements, it can safely be said that at least 8,500 students from out-of-state are currently enrolled in Maine in a school of higher education. Of these students, slightly over 6,000 or 72% of all out-of-state students are calculated to be enrolled in private schools, while some 2,500 students, or 28% are enrolled in public post-secondary institutions. Added to this total of 8,500 are 4,300 students enrolled in St. Joseph's College external degree program who are undertaking their studies at their home in another state, yielding a grand total of out-of-state students of 12,800, or 26% of the total enrollments at all schools.

C. Employment In Higher Education

The ranks of students enrolled at post-secondary institutions in Maine are served and taught by a significant number of Maine people employed in a variety of occupations.

Reflecting the upward trend of enrollments, covered employment in all higher education has grown from 6,900 in 1973 to 8,600 in 1980, realizing an increase of 25% in seven years. Although covered employment includes the vast majority of workers, it does not include religious personnel, such as those helping to staff St. Joseph's College, nor does it include work/study students. However, the Maine Department of Manpower Affairs estimates that average monthly employment of work/study students was approximately 3,500 students in the fall of 1981 at the campuses of the University of Maine, and some 300 at the VTI's, for a public total of almost 4,000. The numbers of work/study students for the private colleges is estimated to be some 1,500 students, swelling total employment in all higher education to approximately 14,000 full-time and part-time employees. By way of comparison, this figure is greater than the number of covered employees in the textile, printing and publishing, or lumber industries, and greater than covered employment in any one of Franklin, Hancock, Knox, Lincoln, Piscataquis, Sagadahoc, Somerset, Waldo, or Washington counties, according to the Bureau of Employment Security's Annual Report for 1980.

Including work/study students, public institutions employ some 9,500 people, or 66% of the total, while the private sector employs 4,500, or

34%. Comparatively, 1973 figures show a 67%/33% split between public and private employment in higher education. Public employment grew by 29% during this time period, while private employment in education rose by 35%.

Of the 14,000 people employed in post-secondary education, only some 2,000 represent teaching staff, as reported by the US Bureau of the Census. Thus, the remaining 12,000 employees, representing 86% of the total workforce, are support staff involved in such work as library administration, maintenance of the physical plants of these institutions, typing, accounting, etc. This support workforce is 216% greater than the total employment in the first quarter of 1981 in the non-processing argriculture, forestry and fishing industries, as reported by the Maine Bureau of Labor, and is equal to the estimated total workforce of Waldo County for FY 1981, as reported by the Department of Manpower Affairs.

The payroll supporting these employees is equally impressive. $101 million were fed directly into the Maine economy in 1980 in the form of wages to higher education employees, representing a 78% increase in total wages paid from the 1973 figure of $57 million. This 1980 total represents almost twice the total of wages paid by all covered employment in each of Lincoln, Piscataquis, or Waldo counties in 1980.

As with enrollment figures, the trends underlying these substantial totals reveal even more about the shape and force of Maine post-secondary education. Because of confidentiality requirements, data is only available in broad groupings, which are discussed here.

In all, private non-proprietary schools increased their employment by 35% from 1973 to 1980, reaching a total covered employment figure of some 3,000, while proprietary schools increased their labor force by 15% to some 130 employees. Public schools increased their covered employment by 20% to almost 5,500 during this period.

Private colleges, universities, and professional schools stimulated the private sector by increasing their workforce by 35% to almost 2,800, while private junior colleges, technical institutes, and business schools employed some 150 people, remaining virtually unchanged from 1973 levels.

The public sector reflected the increases just noted in the private sector, increasing employment at the colleges, universities and professional schools by 18% to almost 5,000 during these seven years. Public junior colleges, technical institutes and business schools employed 500 people, up 39%.

By combining both public and private figures, it becomes evident that the colleges, universities, and professional schools of Maine employ the majority of higher education's workforce, accounting for almost 8,000 employees, or 91% of the 8,600 covered employees mentioned earlier up 24% from 1973. Junior colleges, VTI's and business schools represent

650 employees, or 8% of the total, up 28% from 1973. Proprietary schools constitute 2% of the workforce.

In sum, employment in higher education is concentrated in the college, universities, and professional schools at Maine. As would be expected, the public institutions employ the majority, some 64% of this employment category, not including work/study students.

Reflecting upward employment trends, compensation in the form of wages and salaries has also grown in the 7 years between 1973 and 1980, rising, as noted, by 78% from $57 million to $101 million. Of the 1980 total, colleges, universities, and professional schools accounted for $91 million dollars, or 90% of the total. This amount was divided 33% to 67% between private and public institutions. Wages and salaries paid to junior colleges, VTI's, and business schools totaled $9 million, or 9% of the total. Private institutions paid 14% of this figure, while public institutions financed the remaining 86%. Proprietary schools accounted for the remaining $950,000, representing 1% of the annual total.

These figures for 1980 earnings by employees of higher education represent a 75% increase over 1973 for the colleges, universities and professional schools, a 109% increase for junior colleges, VTI's and business schools, and a 277% increase for proprietary school employees. Private schools fed a total of $33 million into the Maine economy, while public schools contributed $68 million.

CONCLUSION

Higher education, with its payroll of $101 million, is clearly a significant Maine industry. It is also an industry marked by diversity. While New Englanders would find the mix of schools dominating the post-secondary education scene in Maine familiar, co-existence of successful four-year liberal arts colleges, state university campuses of varying sizes, specialized degree-granting institutions, research centers, and vocational institutions would surprise some parts of the United States. This diversity is built on the exploitation of historical opportunities such as those that produced the colleges and univeristies of an earlier period of American colonial and republican history.

Each institution historically carved out a section of the market for its own specialized approach, whether it was teacher preparation, research and study in the agricultural and related sciences, liberal arts training in preparation for leadership in business and the professions, career-oriented training, or vocational training. This process of market division resulted in sharp differences between liberal arts institutions and those oriented explicitly towards career preparation.

However, the notes on the classes of offering within each institution indicate the present complexity of the higher education world, and the blurring of the formerly sharp lines of demarcation under the impact of a changing demographic reality in Maine and a changing mode of economic enterprise. Liberal arts colleges are increasingly sensitive to the post college vocational needs and concerns of their students, while institutes focusing on career preparation pride themselves on the increasing strength of the liberal arts component in their course offerings. The erosion of the formerly clear liberal arts wall surrounding certain institutions is evident in the venture of some of them into a "university without walls" strategy, or into a medical specialty school.

The blurring coincides with the search for identity that is evident in the program approaches of individual institutions, particularly the state institutions, as the historical justifications for their existence no longer exist to support them. It also coincides with the notable increase in the enrollment of part-time students.

The increase in the number of such students suggests the existence of a pressure in Maine of the kind that in many other states led some years ago to the creation of a formal network of "community colleges". While the original models of community colleges were fuzzy, and while the implementation of the models has varied markedly from one state to another, and from one part of the country to another, there is still a basic note to these institutions of openness, experimentation, and responsiveness to the needs of members of the community beyond the traditional college age and with varying prior educational experience.

The Maine situation is no different than that existing elsewhere in the country, in the sense that higher education everywhere is trying to discover the main lines of social values and social organization emerging in an America built around the new economic formats stressing the communications technology. The question for Maine is how to take existing educational resources, and at the least cost help institutions reorient themselves to the new Maine community, and become significant points of training and education.

PART II. MAINE'S ECONOMY - INCREASING DIVERSIFICATION

Maine's economy, when measured in terms of overall indicators such as the Gross State Product (GSP), per capita income and employment has been enjoying a steady and sometimes dramatic increase over the last ten years. During this time period, as Table 4 shows, the GSP rose 29% in constant 1972 dollars, and 151% in current dollars, to approximately $9.3 billion in 1980. Total non-farm employment rose 26% from 332,000 to 419,000, respectively representing 33% and 37% of the total population, while per capita income increased by 12% in constant dollars and 161% in current dollars, reaching a level of $7,800.00.

It is important to focus on this development of the last ten years, and to perceive the significance of this way of measuring the condition of Maine business and industry. Given the duration of this development, and its depth, it is much more realistic to focus on the data just given, rather than on the more traditional positioning of Maine when measured on a national scale. Such national positioning would continue to show Maine relatively low on the scale, and thus would not capture the force and the quality of the movement that is clearly taking place in Maine's economy.

The justification for focusing on the movement of the economy, rather than on its immediate relative standing in the national economic listing, rests on the restructuring of the economy that has been taking place over the last decade.

First, the Maine industrial mix now involves a much greater presence of the newer "high technology" and related industries.

Secondly, earlier economic downturns on the regional and national level produced "shake-outs" of marginal, traditional manufacturing and resource based enterprises. The firms remaining in this traditional sector have not only survived but in several cases are flourishing, as measured by employment in particular, and are giving steady evidence that their managements have conceived

their markets and structured their operations successfully for maximum competitive efficiency.

In fact, most of the plant closures in this area (e.g., shoes, poultry, and textiles) have stemmed in large part not from local inability to compete in the national market but from the competitive position of the industry on the national level or financial misfortune of a national corporate parent. The pending re-opening of some closed shoe plants in the Skowhegan area, under new corporate ownership, testifies to the attractiveness of Maine locations and plant attributes.

Thirdly, it is a fact that the average business enterprise in Maine employs 11.6 people and that 89% of all Maine businesses are classified as small business by U.S. standards. It is also a fact that 55% of all Maine workers are employed by firms with fewer than 100 employees. Nontheless, it is also true that 468 firms, representing 1.7% of all Maine firms, employ 45% of the Maine workforce. The significance of these statistics is three-fold;

a) 55% of Maine workers are employed by firms that are usually too small to have a standardized and extensive program of worker training, beyond safety awareness and initial job orientation.

b) However, studies of individual enterprises demonstrate that a significant minority of such smaller firms have skill requirements that force the firm to organize an extensive training program. Thus, there are small metal products firms with apprentice programs of a formal, or at least highly structured, kind.

c) 45% of Maine workers are employed by firms where size prevents them from using a "family" concept of problem resolution through employee discussions, such as are found in most smaller enterprises. These larger firms require increasingly sophisticated management and organizational development to resolve such issues as those involved in group dynamics and human relations as they relate to the production process.

TABLE 4

	1970	1975	1980
Gross State Product*			
- constant 1972 dollars	$ 4,045.93	$ 4,316.66	$ 5,245.21
- current dollars	3,700.02	5,419.99	9,305.02
Per Capita Income			
- constant 1967 dollars	$ 2,794.50	$ 2,953.47	$ 3,133.71
- current dollars	3,250.00	4,760.99	7,733.99
Population	994,000	1,063,000	1,125,000
Total Employment	332,200	356,900	419,200
- manufacturing	110,400	96,300	113,200
- non-manufacturing	221,800	260,600	306,000

While the Maine economy is still classed by some analysts as "colonial" when measured by the amount of food and raw materials produced in Maine for use elsewhere, and the fact that consumers in this state are dependant on out of state sources for most of consumer items[5], this represents a somewhat static view of Maine's economy. In terms of significance for Maine's post secondary institutions, and for public policy makers, what is most important are the changes that are taking place. Increasing diversity within the manufacturing sector, and an improving business climate have broadened the base of the economy, making it more resistant to recession, and improving its prospects for continued growth.

While these changes have not completely altered Maine's economic make-up, they are generating increasingly significant pressure on Maine's social institutions, particularly on Maine's post-secondary institutions. The future movement of Maine out of "colonial" status, to extend this image still further, will depend to some extent on an adequate response to the new challenges by Maine's higher educational schools.

The following discussion breaks down these overall performance indicators by economic sector to allow a closer examination of the changes taking place in Maine's economic fabric.

A. MANUFACTURING

1. Non-durables. Employment in non-durable manufacturing totaled 71,500 in 1980, representing 63% of all manufacturing employment, and 17% of all non-farm employment in that year. This sector is composed of food and kindred products, textiles, apparel, paper and allied products, leather and leather products, and other non-durable goods. Of these, leather products are the

[5] "Economic Development in Maine: 1940-1990". Carl E. Veazie, Senior Economist, Center for Research and Advanced Study, University of Southern Maine. 2/82. pg. i.

largest employer, followed by paper, and food products. Together, these three components represent 68% of non-durable employment in Maine.

The following chart graphically displays the employment composition of the non-durable sector, and indicates the contribution each catagory makes to the total.

	Employment[6] (1,000s)				
	1970	% of Total	1980	% of Total	% change 1970-80
Non-Durable Goods	77.1	100%	71.5	100%	- 7%
Food & Kindred Products	11.5	15%	10.3	14%	- 10%
Textile Mill Products	10.9	14%	8.2	11%	- 25%
Apparel	3.3	4%	4.7	7%	+ 42%
Paper & Allied Products	17.7	23%	18.2	25%	+ 2%
Leather & Leather Products	25.8	33%	20.3	28%	- 21%
Other	7.9	10%	9.8	14%	+ 24%

As the table points out, although overall employment in non-durables fell 7% during this 10 year period, not all component industries declined.

The outlook for the non-durable manufacturing sector, like employment changes, varies by product group. Leather and leather products employment is expected to increase with the reopening of at least one plant, and the planned expansion at another, and with the continued strong market for running shoes. Maine is currently the leading shoe manufacturing state in the nation. The outlook for paper products is also positive, as 7 major expansions or modernization projects are currently underway. The outlook for textiles is not as bright, and employment is projected to continue to

[6]Source: Bureau of Employment Security - "Revised Estimates of Non-Farm Employment in Maine" 1970 and 1980.

decline in the next few years, following trends started in 1977. The food and kindred products component is also depressed, largely as a result of the failure of four of the five of Maine's broiler processing companies.

2. Durables. Employment in durable goods, while not representing as great an absolute number of employees as the non-durables sector, increased at remarkable rates during the decade from 1970 to 1980. Total durable goods employment reached 41,700 in 1980, representing 37% of all manufacturing employment, and 10% of all non-farm employment in that year. The 37%/63% durables vs. non-durables employment ratio in 1980 compares favorably for durables goods against the 31%/69% split existing in 1970.

This sector is composed of lumber and wood products, metal and machinery goods, and other durable products. The following chart shows how the three sectors fared during the decade from 1970 to 1980.

Employment[7] (1,000s)

	1970	% of Total	1980	% of Total	% change 1970-80
Durable Goods	33.3	100%	41.7	100%	+ 25%
Lumber & Wood Products	14.2	43%	13.3	32%	- 6%
Metal & Machinery	10.9	33%	17.0	41%	+ 56%
Other Durable Goods	8.2	25%	11.4	27%	+ 39%

As demonstrated by these figures, and as supported by visible evidence across Maine (perhaps most strikingly at such plants as Pratt & Whitney, and Bath Iron Works), metal products and machinery are fast growing industries

[7] Bureau of Employment Security. Op.cit.

in Maine today. Short-term prospects are not as bright for the lumber and wood products industry, largely as a result of the nationally depressed home building industry, although the planned construction of at least 2 waferboard plants should boost this industry's employment.

Within the metal products sector, the fabricated metal industry has been one of the fastest growing in the entire manufacturing sector in recent years, fueled largely by ever increasing demand from the growing electronics industry, and ironically, by the demand for pollution control devices, the purchase of which helped dampen the paper industry's profits for several years. The continuing plant expansions, the entrance of new firms such as Lemforder Metalwarren, and the growth of the Maine electronics industry are expected to support continued employment rises.

Non-electrical machinery has performed even more successfully than fabricated metals over the last five years, increasing employment from 1975 to 1980 by about 2,100, representing a 91% increase in employment to reach 4,400. Two quite different industries - heavy machinery and electronic computing equipment compose this group. Employment growth in electronic computing equipment, triggered by such firms as Data General, has sparked the entire non-electrical machinery catagory. The outlook for electronic computing equipment in Maine is very good. Unfortunately, heavy machinery has not shared in this phenomenal growth, due largely to a nationally depressed capital goods market.

B. NON MANUFACTURING

Employment in non manufacturing enterprises in Maine totaled 306,000 in 1980, representing 73% of all non-farm employment. This sector is the largest

employment category in Maine, and is composed of contract construction, transportation and public utilities, wholesale and retail trade, finance, insurance and real estate, services and mining, and government. The following chart shows the performance of these sectors in the decade between 1970 and 1980.

Employment[8]
(1,000s)

	1970	% of Total	1980	% of Total	% change 1970-80
Non Manufacturing	221.8	100%	306.0	100%	+ 38%
Construction	16.8	8%	19.7	6%	+ 17%
Transportation & Utilities	17.6	8%	18.8	6%	+ 7%
Wholesale & Retail Trade	65.9	30%	89.2	29%	+ 35%
Finance, Insurance & Real Est.	12.2	6%	16.5	5%	+ 35%
Services & Other	42.9	19%	78.5	26%	+ 83%
Government	66.4	30%	83.3	27%	+ 25%

This grouping is one of the most successful sectors in Maine's economy. However, the challenges will be great as it responds to a weakening economy and reduced consumer, commercial, and industrial purchasing power. Although the sales of these industries have all increased over the last few years when measured in current dollars, inflation has taken a severe chunk out of real earnings and profits. For example, the Associated General Contractors of Maine reports that while the dollar revenue of the construction industry rose slightly in 1980, the actual volume of work done was less because of inflation and extremely competitive bidding on the small volume of contracts being let, resulting in smaller real profits.

[8]Bureau of Employment Security. Op.cit.

CONCLUSION

As the data here indicates, the most significant economic sectors in Maine, when measured in terms of total employment, are the non-manufacturing and the non-durable sectors. Within these sectors, the wholesale and retail trade industry forms the largest employment catagory, followed by government, services, leather products, and paper products.

When measured by growth over the last decade, the most promising industries for the 1980's are found in the non-manufacturing and the durable goods sectors. Specifically, the services industry surged forward during the 1970's, showing an 83% growth in employment, followed by metals and machinery, wholesale and retail trade, and finance, insurance, and real estate.

The factors affecting economic growth and diversification within a state or region include the cost of production relative to other locations, the availability of sufficient capital for initiating, expanding, and maintaining an enterprise, and the quality of life available in the region. Important components of production costs include the availability and productivity of the labor force, the distance to markets and materials sources, the availability of efficient transportation modes, and the cost of fuel, power, and water.

As various reports have shown, and as numerous firms have independantly reported, the efficiency and availability of Maine's work force is one of the most significant factors in assuring Maine's competitive position in the national and international economics. The "Maine Work Ethic" is a valuable asset to this state.

However, a successful business enterprise requires more than workers efficiently assembling products. The movement of these products to the marketplace, the receipt of raw materials with which to fabricate more products, and the maintenance of close contacts with major trading and market areas are equally important factors.

Communications capabilities and transportation facilities formerly mandated the geographic proximity of plant to its market. Consequently, many out of state firms perceived Maine as too far removed from market areas to be a competitive production location. However, the continued development of higher speed, sophisticated communications technology is minimizing the importance of market proximity. These developments are making rural locations in Maine feasible and desirable. In addition to the communications revolution, the fact that many high technology industries make small, lightweight products with high value added minimizes both absolute transportation costs and their percent contribution to the total production cost and consequently minimizes the importance of location. Air shipment is commonly used by such industries.

Air shipment is commonly used by such industries

In sum, the industries that form Maine's economic sector include those that could not previously have established a viable base in Maine. The change in communications technology, the growth of financial and other support services essential to industry's operation, the productivety of the Maine worker, and the attractiveness of a non-metropolitan location for living and working have all combined to increasingly make Maine a desirable place in which to locate an enterprise. Given these developments, one can surely anticipate a continued influx of firms directly involved with or supporting the computer/high technology industries, with a significant number of locations in rural areas.

SECTION II

A CASE STUDY ANALYSIS OF THE LINKAGE BETWEEN HIGHER EDUCATION AND MAINE'S ECONOMIC SECTOR

INTRODUCTION

Statistical materials of the kind set out in the first section of this report describing Maine's post-secondary education and its economic activity sectors provide a macro-analytic approach to the core elements of these sectors. They are valuable for suggesting points of strength and weakness in the relationship of the two, and for guiding entrepreneurs and public policy shapers in fashioning effective instruments for relating the two areas to each other.

As with any endeavor, it is also valuable to look at the higher education/economy sectors relationship from a micro perspective. The consultant has therefore conducted some 50 interviews on-site with leaders of Maine commercial and industrial enterprises, key officers of institutions of post-secondary education, management officials in those parts of Maine state government concerned with higher education planning and operations, as well as those concerned with state personnel training and development, political leaders particularly interested in higher education, and labor union leaders.

These interviews provide raw material indicating the way in which relations between the economic and higher education sectors are concretely felt and analyzed by those who have the responsibility for institutional guidance in conditions where resources are scare for everyone and in which the pressure for maximum efficiency of operations is a real-time fact.

This reporting of the results of these interviews begins with those firms in the economy who seem, at first glance at least, most distant from the world so often associated with modern high technology. It moves on to look at enterprises clearly more related in product and production techniques to the technetronic model of economic activity. It looks then at the sense of fit between higher education and the Maine economy held by public officials and by labor leaders.

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Maine business and industry are education and training-oriented. It is practically impossible to find a private enterprise in Maine that does not have some form of deliberate, explicit training program.

Yet at the same time, it is practically impossible to find a private entrepreneur in Maine satisfied with the range and quality of the training and education programs available for his employees.

There may be variations in the way this sense of need is expressed, depending on the kind of enterprise, the sector of the economy within which it lies, its size, or its geographic location. But, the varia-

tions do not distinguish one company from another in their common concern for overall enhancement of the skills and productive capacity of their workers and Maine workers in general.

The enterprise which seems the least aggressive about using education and training to maximize the contribution of its employees to the efficiency of operations is the Maine state government, and local governments in general as well.

I. MAINE'S TRADITIONAL AND RESOURCE INDUSTRIES

When viewed as a whole, the enterprises with the least well-defined sense of the relevance of continuing education and training to the productivity of their operations lie within the sectors of the Maine economy that dominated economic life in Maine a century ago.
Some of the firms in these categories are large, employing up to 3,000 workers at times in several plants of the firm, and at least one company is the largest independent firm in its industry.

Training strategy in this sector emphasizes on-the-job direction by peers and foremen. Usually workers are placed in particular positions based on the results of aptitude and skill tests given following hiring. Often employment with the firm is the first regular employment experience in the working life of the individual, and many employees spend their whole working lives with the company of initial employment and in the area of initial placement. This lack of job mobility is reinforced in firms that pay by piecework. The employee's ever increasing skill in one function, resulting from task repetition, provides an economic disincentive to transfer within the firm to other jobs.

A. SHOES

In the natural leather shoe industry, employers stress the need for continual adaptation by workers to the varying characteristics of the raw materials with which they work. For these employers the chief contribution of educational establishments to the development of the worker is encouragement of the worker's "common sense."

In the case of some employers this is true not only for the craftsman but for the staff assistant as well. For management trainees some enterprises have a 3-year program of intensive on-the-job training under the direction of a series of supervisors as they move from position to position within the firm. But, as the managers put it "the textbook has not yet been written for the shoe industry." This means that what the industry expects of post-secondary institutions training technical and professional staff for the industry is the development of analytical power corresponding to the workers' common sense and the development of some sense of the work as a significant, human activity to be done well.

This is an approach not limited to older companies. Even newer, rapidly-growing and internationally competitive shoe firms in the state assume that at the management level, as elsewhere, training is best when done internally. There appears a strong bias throughout this industry against the notion that a specific business-management training is needed for success in the company. What seems more important to leadership personnel in these companies is that the prospective staff person or man-

ager have an education rather than that he be trained. In every case with which the consultant became familiar, the aim of company leadership seemed to be to develop a "family" spirit within the company, and to reinforce the sense of the value of hard work.

But, while executives are at times even skeptical of management training programs offered in universities or by private consulting firms, there is in some cases a very strong willingness to help workers develop talents through the taking of specific courses or even programs of study after coming on the company's payroll. In at least one case the company's formal training program stresses an elaborate six months of study of foreign cultures as a preparation for work for the company abroad.

B. TEXTILES

In the textile industry as well there is evidence of the same management sense that perhaps textile production does not lend itself as well to the application of the particular management styles nurtured in advanced schools of business administration. At any rate, though some of the firms are large, the sense of company leadership is that the formal business administration training at the undergraduate and graduate level is not of great value to the company. While company help in obtaining advanced business degrees seems in general readily available, company appreciation of the practical effects of such training often seems to be one of skepticism. One company did not feel that the MBA degrees that it had financed for two employees had significantly aided the company.

What seems to operate here, as in the shoe companies, is the management sense of a model of the firm that stresses the enterprise as a family or at least as a community, and as a milieu where it is possible to earn an acceptable wage, have a secure income, and enjoy the companionship at work of one's neighbors.

To the management of such companies the problem of handling employees on the line, like almost all other supervisory problems, seems remote from the thinking developed at business schools through the study of complex cases in the management textbooks or in professors' handouts, or in cases propagated by the WALL STREET JOURNAL and the NEW YORK TIMES. For such leadership, affirmative action and the other accoutrements of

an advanced technological society in the throes of change seem reasonably manageable. Only workers' compensation and OSHA appear to be problems requiring very much in the way of training attention in the formation of the supervisory cadre.

Emerging needs within the textiles and shoe industries: within this general environment marked by blandness of attitude towards the value of continuing training there are, however, variations which suggest a stronger impact of new social elements and changing social values than at first may be apparent. Even in some small textile companies, senior leadership speaks of their own personal need for more opportunity to grow professionally and personally. These leaders are not interested in semester-long courses, but rather in short "module-type" programs that over a period of several meetings would bring them up-to-date on current thinking about the structuring and implementation of the management process. Some such updating is possible from time to time through American Management Association programs, or through those of the Associated Industries of Maine. But, travel costs money, and there is not always the subject variety which these men and women think a post-secondary institution in the community should provide.

Most pressing, however, is the sense on the part of senior managers that their supervisors need additional training, particularly in human relations, group psychology, and motivation and communication. Most managers are not certain in saying this that they know exactly what

would be involved. They see and feel the need nonetheless. Where they have tried to get help from a post-secondary institution in the evaluation of their need and its translation into a possible employee development program, they have usually found it difficult to make the communications link with the appropriate institution or found that there were curriculum rigidities, funding problems, or scheduling difficulties that made it unlikely that their workers could be provided suitable programs.

It should be noted that the production equipment used by these firms is often so specialized that no instruction in its use could be expected by the VTIs. Also, given the traditional "family" mode, it is not surprising that VTIs and other post-secondary institutions have rarely sought to make contact with the leaders of these firms. Indeed the head of a firm with an interesting, if limited, in-house program of training managers for foreign assignments noted that the consultants on this PECOM project were the first representatives of the post-secondary world, at least so far as he could remember or knew, who had come to inquire about his views on his company's training and development needs and on what Maine's post-secondary institutions could or could not do for his enterprise.

C. POTATO PRODUCTS

A hybrid kind of situation with regard to training in a traditional Maine industry is found in a potato products company in Aroostook County. Here the management is very sensitive to the potentially disabling problem of unskilled maintenance mechanics. Feeling constrained by what it explains as union contract requirements to move workers from the unskilled category into the maintenance cadre, the firm resorts to on-the-job, and what it thinks of as "idiosyncratic" training,--that is, training that emphasizes an unsystematic and individual approach to problems encountered in the maintenance of vital plant equipment. The result is that tending of machinery can at times involve techniques akin to those used by homemakers in dealing with balky refrigerator or dryer at home: giving a good kick will sometimes do the trick.

The local VTI has been as helpful as it can be in using specialized courses in home electric repair (e.g. wiring) as a way of helping these neophytic mechanics move toward a more cognitive approach to the problem. Needless to say, the potential drain on the resources of the firm is heavy and the loss in efficiency very great. It is a classic and difficult problem for training specialists to handle.

In this same enterprise the training of supervisors is a constant management concern because of the limited possibilities that exist for such training. One day a month for training is the goal, and often the day is taken up with the disucssion of safety problems. While this is worthy, the real problem seems to management the kind that cannot be

dealt with in one-day a month or one-day a year seminars using outside private trainers dealing with "Handling the Difficult Employee."

Emerging needs of potato processing: underlying the general sense here of a systematic inadequacy in the development of opportunities available to this kind of enterprise in this location is the feeling on the part of senior management in the enterprise that perhaps the problem is their getting a handle on the plant as a whole, upgrading their own thinking and skills so far as systems-building in the enterprise is concerned. This is where there is a sense that the university or VTI could be a help in research, consulting, and training activities aided at moving them, and consequently, the plant along the strategic lines of system.

D. WOOD PRODUCTS

While the training and development orientation of some firms in these traditional areas often seems prosaic, and indeed archaic, against the attitudes and practices of firms in other sectors, it would be unwise to bracket such firms so as to make them seem of one mode. There are variations among them, and there is strong management interest expressed across the board in modernizing education and training, but often a sense of discouragement at the financial and practical obstacles to a more dynamic program.

The wood-products industry here provides evidence of the more recognizably modern interest of American industry in creating a "learning" environment in its plants. Some of this can be attributed to the impact of the major national paper firms in the whole sphere of forest product development. These firms operate in the state as total processors of wood products, from the growing of the tree down to the final, maximally-efficient use of all by-products of the process of producing consumer goods.

One of Maine's major wood product firms located in western Maine makes clothespins, rolling pins, and other similar goods, and has recently moved into making plastic eating utensils as well. Most of its workers are occupied with work requiring relatively little skill. But there are some 100 skilled workers who are critical for maintenance and whose continued training has to be a matter of concern for the management. There is also a cadre of some 30 or so supervisors whose effic-

ient direction of the work-force is crucial to the enterprise's success.

Here the management sees itself limited in dealing with unskilled workers to safety indoctrination and to the supervision of workers by peers aiding new employees in learning the basics of handling their job. Because of the Personnel Director's previous acquaintance with the director and staff of a regional VTI, he has in his new position come to rely on this VTI for help in setting up ways of improving the training of workers brought up from the ranks to tasks requiring greater skill, as well as for help in providing maintenance specialists and workers with such specialized abilities as drafting. What has pleased the top leadership of this company is not only the high quality of the technical training of this VTI but, just as importantly, the quality of the work attitudes developed among students by the VTI faculty and administration.

Concern with availability of supervisor training programs: Of major concern to this firm is the formation of their supervisor force. The approximately 30 supervisors involved have all been drawn from the line. The company's leaders believe it is crucial that this "raw material" be trained so as to bring out its strngths. This, they believe, requires not the incidental and "peer" help which seemed to suffice in earlier generations, but a systematic professional, competent introduction to the work situation as a supervisor/management responsibility. They want supervisors to be introduced to group dynamic theories, communications, and discipline.

Experience has led the firm's leaders to believe that the crucial element in such formation of the supervisor cadre is the quality of the trainer. This makes the transient trainer provided by specialized training company a problem. Not only is he too expensive for the small firm to afford, but the firm believes he tends to undertrain. The very good trainers from the private sector are very expensive.

There are good trainers for supervisors being developed at the Maine VTI's. Managers of firms such as this wood products company find that VTI servicing of the supervisor-formation area is becoming gradually but increasingly effective.

It is particularly important to note the stress put by both VTI directors and plant managers on the indispensability of trainers who can really "interface" with Maine workers. In the setting of the small Maine factory employing fewer than 500 or 600 workers, the strong feeling that there can be a Maine way of organizing and living a work situation becomes all the more pronounced. Trainers accustomed to dealing with supervisory situations in metropolitan areas often lack the language skills and the feel for Maine ways of thinking that are required for developing the indispensable support between trainer and supervisor.

Need for more systematized outreach by Higher Education: the problem of developing meaningful supervisor training in this enterprise is in microcosm an illustration of the more general problem of making the post-secondary system relevant to Mainers. The supervisor course

used in this case is the result of the happenstance of long-time personal contact between VTI faculty and a second-line plant supervisor. While VTI directors are concerned about the strengthening of their roles in the supervisor development area, their ability to organize effective out-reach is seen as limited by personnel and funding constraints.

E. PAPER COMPANIES

A good general emphasis on training and on the development of in-house facilities is also found in the case of the large paper companies. Here the enterprises are rapidly demonstrating in very tangible form the consequence of their long-term movement to capital-intensive operations that use the most advanced high technology in equipment and methods. Their work force is being gradually altered through normal processes of retirement, resignation, and death as this deepening of the capital intensive process goes on. The addition of recruits from a new generation of highly-trained workers has produced a significant change over the last few years in the atmosphere of the paper plant, from one where physical labor struck the observer as still very much a major part of the operation, to the present situation where the computer and highly-skilled technicians are the significant elements.

The policy of the corporation owning one major pulp-producing facility in Maine involves a heavy emphasis on the training of employees at all levels. It particularly stresses management training.

The heart of training programs in a facility such as this is the semi-annual or annual review of individual employee performance. The aim of this evaluation is to identify employee strengths and weaknesses. It also serves as a basis for planning individual training and development programs within the framework of the education and training process set up for the plant as whole. This process in turn relies on

formats and materials made available by corporate headquarters. It can involve compulsory, paid training sessions for work teams in their off-duty hours.

Apprentice programs are a part of this scheme. Here union-management committees for each skill supervise recruitment and training. The company looks for workers with experience, so while recent graduates of regional vocational centers are not likely to be considered, VTI graduates are of interest to the apprentice committees which consider VTI experience of substantial value. More importantly, however, what the apprentice committees are looking for, as they put it, is POTENTIAL. The four-year apprentice program includes 150 hours per year of instruction on company time. Beyond this each apprentice is on his own to complete required ICS units. Such study can be supplemented by work at VTIs and other facilities, identified by the company.

Desire for flexibility in post-secondary offerings: personnel officers of this facility are looking for greater flexibility on the part of area post-secondary institutions so that their employees' educational opportunities might be expanded. They believe it should be possible for a worker to attend the state university campus and receive a degree without going to school during the day. They would also hope for a more assured system of credit transfer among the university campuses.

Perception of role of education: but, it is clear that one of their most important consideration is that VTIs, while they conduct courses of operational utility, also understand that their primary mission is that

of imparting to their students a sense of "the general climate of industrial life." They are concerned about the general quality of educational opportunities available to all their workers.

These companies recognize the problems involved in delivering educational services in areas of relatively sparse population. But in a day when machine operators in paper mills are very highly paid, when these mills are becoming models of technetronic industy with much of the production process controlled by computers, they also see the challenge to higher education institutions to deliver their services more broadly and deeply as both pressing and indispensable to their own survival in a competitive world economy and to the development of American society as a healthy community providing industrial and general leadership to the rest of the free world.

II. MAINE'S SERVICE INDUSTRIES

A. BANKING

The banking industry in Maine represents in more complex ways the range of problems faced by the companies of the kind discussed above. Here the skills required of the large body of workers are ones that are brought forth by training programs within the bank itself. The tellers can be trained, and refreshed in their training, in mock-up situations that give them a realistic preparation for what they will encounter on the job--re-training allows for even more in the way of role-playing. That such in-house training pays off is something that does not seem to be calculated by banks in specific cost/benefit terms; but bank managers are convinced that it does work. In one typical large Maine bank, it has been observed that when the teller-training program was started again after a lapse of several years, teller turn-over dropped from 35% to 20.7% annually, and bank officers noted that "when there is no teller-training, the 'overs and shorts' go up."

The banking industry as a whole provides a striking array of training opportunities for employees at the management level. Maine banking employees are regularly sent to American Banking Association one-week programs or to the one-week summer programs run by the association at Williams College, which is built on a two-year attendance principle. Of a more extensive kind are programs such as the one at the University of Virginia at Charlottesville, run by the National Consumer Credit

school, which involves two weeks of concentrated study per year for three years. Thomas College is the site of the American Institute of Banking program.

There can be no doubt of the range of opportunities, at least in the larger banks in the state, offered by the banking industry to its employees, nor of the interest of banks and workers in training. Individual banks are responding to the interest, and expressing their own competitive concern for worker training by expanding their personnel training services. As is common in other service enterprises, banks will assist with tuition and book expenses for courses broadly relevant to the employee's job.

But, as with the cases in the sectors discussed earlier, experience in the banking sector with university access has been disappointing to industry leaders in some cases. While experience varies, there is a sense that educational institutions have not been sensitive to the possibilities of educating and training bank employees. One large bank now reminds its employees through notes in their pay envelopes that "the educational process never stops," but its officers note with disappointment that it seems difficult for workers to find convenient, off-hours education that is meaningful to their job and to their general professional development. "Traditional practices" of colleges seem to pose a problem here to the effectiveness of their "out-reach."

B. READING SKILLS COMPANY

A service industry newly-arrived in Maine, with an excellent chance for long-term stay here, is one which emphasizes high-level reading skills and presents a reaction to Maine's higher education opportunities not unlike that of banks. As with banks, the heads of this enterprise also stress the critical function supervisor training plays in the growth of a profitable enterprise. But, consistent with its modern approach to the work situation--one emphasizing flexible hours--this company's leadership sees an additional requirement for supervisory training beyond those covered by such things as communications and group dynamics. Their own sense is that leadership in the group situation is enhanced by creative writing, and they look to the university to provide the training to help in the development of supervisors' creative talent.

In a sense the rationale for this is not unlike the rationale of the banks for workshops in the writing of business letters. But it moves the ground of the discussion beyond the immediately perceptible justification of enhancing the image of the company to the client, to the organization and vitality of the mind of the employee in terms of his relationship to the quality of the work environment itself.

Emergence of new concept of the work-place: the creative writing technique also serves to emphasize a theme running through all these analyses, in-so-far as the enterprise takes a position beyond the traditional one of an earlier generation's conception of the psychology of the work-place. This is the theme of the increasingly complex world of work, and of the

opportunities for new, creative instruments for helping management to understand and to deal with the personal and group dynamics. Whether it involves the wood products factory or the reading-oriented enterprise, what is taking place is a quantum leap in the perception by Maine employers of what is involved in the leadership of the work force. And it is a leap which post-secondary institutions can help with. But it is one that requires a new, systematic and multi-disciplinary understanding of what is involved objectively and subjectively in that workplace.

C. CONSTRUCTION

In responding to this increased complexity of the work-place, a Maine construction firm, one of the largest in the United States, bases its hiring and training programs on the philosophy that it is not hiring skills, but potential. The company handles the whole training process for its workers. Rather than stressing vertical, craft training, it tries to develop workers in a horizontal sense that is, so that they can develop skills across several trades. The company is a non-union company.

Similarly the company handles the training of its supervisors in-house. It uses a team-taught arrangement in which one of the three "trainers" who are permanently part of the personnel staff are joined for a particular discussion by a senior company official. While the trainers are skilled in presenting a behavioral sciences approach to line-leadership problems, e.g. motivation and communications, the senior official helps the trainees understand the theoretical material in terms of practical on-the-job conditions which the members of the group, actual or potential foremen, are likely to encounter. The program for supervisors requires two days per week, eight hours per day for four weeks.

The company finds its training program very cost effective, "because there is no alternative." Neither the VTIs nor the universities can provide training needed, or at least they do not do so at present. VTIs do not have the heavy equipment used by the company in its construction work, and the company perceives its own supervisor training program as more realistic as well as being solidly-grounded theoretically. The com-

pany also notes the absence of an engineer-training program other than the day-time one at Orono. It wishes such programs were available for its personnel at night.

D. HEALTH SERVICES

The emergence of new attitudes towards education and training in the work-place is reflected in a tension of views over the ends of nursing education, and the role of R.N's. The emphasis, in the conception of the Maine State Nurses Association, should be on the preparation of registered nurses through an educational process that will integrate nurses' specialized training with a liberal arts, bachelor's degree education. The secondary aim of nurses education, in this conception, is to upgrade the education and training of all those preparing for any type of nursing service. The Nurses Association feels a resistance to this strategy exhibited in an effort by others to hold nurses' training to a vocational level.

Hospitals themselves are often the sites of a remarkable amount of training. This is becoming so true that at least one major hospital center in the state is considering marketing the courses it has developed in-house, and making them available in a commercial manner to others. It is interesting that the leadership of this medical center finds the University of Maine system to have very little marketing sense, and to exhibit very little interest in relating its activities to the work of the medical center.

The training of nurses is a question inevitably caught up in current controversies over the nature of the several roles played by medical personnel in hospital settings. Registered nurses are asking for more extensive authority to use their discretion in performing patient care duties

hitherto performed by physician. They are also looking for the upgrading of the skills, and for more extension of the latitude given to LPNs to perform tasks now reserved to RNs. Such questions become part of the whole interactive relationship of nurses and hospitals at the bargaining table, and are bound to be approached within the framwork of the deeply-rooted expectations and understanding of the several parties directly or indirectly involved in the negotiations.

It is interesting to observe the stress put by at least one medical center on the need for the state university campuses to reorient themselves to a marketing posture for the conceptualization, organization, and delivery of their educational services to the community.

III. MAINE'S METAL PRODUCT FIRMS

As one moves to a more sophisticated or complex technical level of production or service, he finds that the same general attitude set is maintained by employers toward Maine post-secondary institutions as was exhibited by firms around which the preceding discussion revolved: the concern of the companies for training is deep, the thirst for training help from post-secondary institutions strong, and the organization of the requirements for trained personnel complex.

A. MACHINE SHOP

One modern machine shop in Maine produces products from designs provided by customers from across the United States. It has some 80 employees, of whom 15 are supervisors or professional staff. Of the others, 50 are skilled workers, and 15 are semi-skilled.

The company relies on its own internal resources for the training of employees. This is training carried out by the supervisors. The management of the firm has never tried to put a dollar value on this training, and doubts that such a determination is possible.

The company's machinery is expensive, complicated, and in some cases computer-related. The firm's officers see no possibility of being able to hire workers who would come to the firm out of school fully-trained to handle such machines. In every case the employee will need to receive particular training, some times requiring from three to four years. Where the new employee has not gone through a two-year VTI program, one of the company managers provides classroom theory and other fundamentals of machine operation. This is done at a "go at your own rate" pace, with an examination usually every couple of months.

What the firm is looking for in the VTI graduate, it says, is not so much training for a specific job. This VTI can do very well in many instances, they believe, but not for the equipment used by the company. What is most needed from the VTIs are graduates inculcated with work discipline, with healthy attitudes toward production jobs, and with a

developed drive to produce quality work most expeditiously. Some VTIs they find better at turning out such workers than others. The facilities at some VTIs they say are such that they allow for programs providing for that "total immersion" in the industrial process and in the atmosphere of a production-oriented enterprise that the managers feel is essential to the turning out of the kind of employee they are looking for.

VTI instructors would be helped in their teaching of fundamentals by being able to work on advanced equipment, and this firm has been able to make time available for such familiarization, and would be willing to do even more along this line. At the same time, what VTIs have to offer in the way of fundamentals ought also somehow to be made more readily available during off-hours to workers such as the company employs, they believe.

At the level of supervisors and managers, the company's officers feel very acutely the lack of the "module" rather than "course" training they believe would help them keep abreast of the latest relevant thinking in the management area. The colleges and the VTIs somehow seem to them not able to provide such modules to company leaders, at least not in a way that is attractive to them, in the sense that courses are usually offered on a full-time day time base, during hours when personnel are required to be at the work-place.

Finally, those who run such a company always express a regret that engineer-type training is not available except through a day program at Orono.

3. FABRICATED METALS

The Pratt and Whitney experience constitutes another model of relations between the entrepreneurial sector and the post-secondary institutions in the state. There, a special fund of some $500,000 was created by the State to provide entry-level machine operator training in the company's North Berwick facilities in preparing components for jet aircraft engines. In the words of federal government citation for excellence, this training project was one "effectively customized to the needs of a specific employer." Over 700 employees out of 2,000 employed at the facility were trained through this project. Training was conducted by the Southern Maine Vocation/ Technical Institute. About 50% of all instruction consisted of hands-on experience in the training area. Projects were so designed in this area that they reproduced actual working conditions on the plant's production floor.

Pratt & Whitney has a complete training program in-house that covers employees from the entry level through the highest management levels. For training at the top management level the company occasionally brings in an expert from its Connecticut facilities. Continuous entry level and upgrading programs are carried on, and a supervisor development program activity is conducted at its North Berwick plant every other week.

While all this training is in effect in-house, Pratt & Whitney prefers to have its program carried out under the auspices of educational institutions so that any credits gained by the employees can be applied to degree programs.

C. METAL PRODUCT FIRMS

A variation of this relationship between a VTI and an individual enterprise is another southern Maine apprentice program that involves a four-year training relationship of the student, the VTI, and the company. The arrangement allows for several employees to begin the program each year with a six-month period of training at the VTI, and a return then to the plant for regular employment, with reimbursement of tuition after further service with the company.

This metal products company's in-house resources are not as extensive as those of Pratt & Whitney, so executives are encouraged and helped through tuition subsidies to take courses at institutions such as USM. Many of the firm's engineers, for example, are enrolled in USM's Industry Technology course. At the first-line supervisor level a corporate training officer is brought to the local plant facilities once a month to work for two hours with foremen on leadership techniques. The local management would like to work out a basic scheme of foreman education that would cover the whole range of foreman responsibilities, from concern for the good working state of equipment on to personnel actions affecting the workers for whom they are responsible.

In the latter case, as distinguished from Pratt & Whitney, the firm was constrained to work into an employee training program with a traditional apprentice organization that involved several years of training on the premises. While the VTI was able to provide six months of initial training and has additional hours of related instruction after work, the

firm's reliance on advanced, complicated and expensive NC machinery made it impossible to work out quite the kind of program developed between Pratt & Whitney and the SMVTI. Such machinery is of course a problem for all VTIs.

The Southern Maine Industrial Training Association, it should be noted here, supports apprentice programs of the four-year type noted here.

Role of VTI's - Perceptions: Programs of the Pratt & Whitney type, and others of a tailored nature for individual firms, do constitute points of tension between competing conceptions of what the VTIs should be doing. The consultant has noted above that many employers of VTI graduates see the basic value of the VTIs to be their provision of an "education" to the young person, in addition to shaping the specific vocational skills needed for effective production performance. The more tailor-made programs, aimed at turning out workers for a very particular job in a particular company, imply to many of the companies involved with them a stress on the "training" aspects of instruction. Some suggest that the VTIs should perceive their mission primarily as satisfying the needs of Maine companies as consumers of trained graduates of VTIs. Others would stress that VTIs are teachers of students who are the consumers of an education.

IV. MAINE'S HIGH TECHNOLOGY FIRMS

For those enterprises most reflective of contemporary high technology, those that are involved in computer-element production, the chief concern with post-secondary education in Maine is the one their personnel officers say is expressed in the most frequent question put by job applicants who already have a post-secondary degree: "What do local schools have to offer me if I join your firm?"

This is also true of enterprises which mass market out of Maine the kinds of clothing and equipment associated nationwide with Maine life, that is, sports and outdoors wear.

Personnel officers faced with the problem of dealing with this question confess that they find it difficult under present circumstances to give the desirable prospective employee a very optimistic answer.

While the majority of employees at these firms perform tasks requiring few skills, these operations also require some highly educated, sophisticated professionals.

These professional are both part of and enhance the "scientific management" quality of these enterprises. As a key official of one of these enterprises put it, the company's approach to its operations is "holistic." There is a strong emphasis on organizational develop-

ment and management development, treating the enterprise as a total social entity and community. Central to this team-building approach are in this case several Ph.D's in the behavioral sciences.

Key to the development of the enterprise is the professional evaluation of individual and group strengths and weaknessess, and the plotting of strategies for professional development. The corporate headquarters of the enterprise directs an extensive in-house program of instruction using, in many cases, the resources of colleges and universities in the Boston area.

But in-house instruction is by nature necessarily limited. Post-secondary institutional resources would be helpful. Employees in this company are encouraged to take courses and enroll in programs in Maine VTIs, colleges and universities. There is almost no qualification to company subsidization of these courses and programs other than maintenance of a decent grade average.

The difficulty is that, in the experience of this company there, is no chance for the employee to find quite the program or course of interest to him as a high-technology specialist that he would find were he in a larger metropolitan area. The liberal arts colleges, by and large, do not seem to think of the firm's employees as potential students.

One of the problems in some areas of the state, officials of such firms note, is the lack of industry competition. The pool of employees of high professional attainment is not near enough to the "critical mass" point that is reached along the 128 corridor in Boston to make feasible the special program arrangements which an ad hoc consortium of high technology firms in that area have set up.

Desire for continuing education for high level professionals and technicians: Both in this case and in the mass-marketing firm mentioned earlier the concern is, to be sure, for educational skill opportunities singularly pertinent to the job situation. But, even more important it seems, is the firms' concern for educational opportunities for their employees, particularly those at the supervisor and executive level, that will help the employees maintain sharp, alert minds and that will provoke their imaginations. These firms are looking for ways to improve the qualifications of all their workers, from the level where there is a need for basic "reading skill" development to the levels where there is a need for keeping up with theoretical and technological developments in a multiplicity of industries.

What are needed here, as company officials assess employee interest and needs, are theoretical courses rather than practical ones, perhaps those that could be provided by faculty members of the four-year liberal arts and professional colleges, as well as by the faculty of nearby state universities and VTIs.

But in the case of both the high technology and the mass-merchandising enterprise, contact with such colleges has been very limited, and in most cases not-existent. The area north of Portland seems to these companies a difficult one within which to make contact with educational institutions.

V. MAINE'S POST SECONDARY INSTITUTIONS

The preceding reports and commentaries on the observations of business on the fit between the post-secondary world and the Maine economy already have provided an important number of examples of the way in which particular institutions of post-secondary education understand the positive and negative qualities of this interface. In this way, these institutions' respective sense of themselves has also come out. It is useful now to look at each sector of post-secondary institutional life and set out a general summary of the condition of these institutions vis-a-vis economic life, as their leaders see it.

It is important to note that overall the consultant has found in each educational sector an institutional vitality that is truly remarkable. There is everywhere a sense of challenge, of possibility, and of purpose. There was no institution visited which did not display in the quality of the thinking, experimentation, and performance an excitement testifying to an awareness on the part of administrators, faculty and students that, with all its constraints and deficiencies, this era of American history provides important incitements and inducements to creating new ways by which Mainers can grow personally and professionally. Good-will and a general sense of pragmatic adjustment in the mode of relationships within the institution, and between it and the rest of Maine and American society, mark the climate of governance of these institutions.

Even in the classical liberal arts institutions, which one might imagine more sheltered from the turbulence of changing values and varying supplies of material resources in the society, one finds a strong push for a thorough re-evaluation of how the institution's mission is defined, how the strategies are shaped, and how the tasks of education are carried out

professionally. There is here too the willingness to venture into new relationships and to try, in a responsible and common-sense way, new approaches to the task of education.

What this all means is that the sense of needs changes as well. Each institution restates its resources and its material and organizational requirements to fit its new sense of its function and its relationship to the educational world in general and to the Maine economy and society in particular.

A. The Vocational Technical Institutes, for example, feel themselves in a position where a historical funding pattern handicaps them in responding rapidly to new program possibilities for regional economic enterprises. The fact that their primary programs must be funded on a line-item basis leaves them with little flexibility, other than through the self-supporting adult education section of their work, to set up new programs as major undertakings. What they would see as far more efficient is the availability of a pool of funds such as are appropriated by the Legislature to the universities, which, under the controls of the system could be used to alter the relative stress on programs, reducing the importance of some, introducing new ones as the changes in economic life in a VTIs region suggest.

The VTIs also feel the lack of an integrating mechanism, with a responsible leader or group who can speak for the VTIs before the public and before such public bodies as the Legislature. Very recently the State Board of Education has moved in this direction of providing a more sustained and more encompassing leadership to the VTIs, and it would seem that this development would be an important consideration in any legislative reassessment of the VTI governance system. Nonetheless, it would seem possible to combine such lay oversight of VTIs as the Legislature and the State Board of Education provide with a

leadership and representation mechanism built around the directors of the VTIs, and related to the Commissioner of Education.

Educational Mission: The VTI directors assume in all their operations that their mission is to provide an education of enduring importance to all their students, and in particular those taking the basic two-year programs. By providing a theoretical understanding of the particular technological world for which the training is taking place, by giving as much of a hands-on experience as the equipment of the VTIs realistically permits, and by shaping the students' sense of the world of work and imparting to them a sense of the Maine work ethic, they hope to achieve this goal. It is assumed that training will continue to take place at the work site for the duration of a worker's career.

The VTI directors interviewed all demonstrated a pragmatic flexibility in adapting to possibilities for aiding the industrial and commercial world in the education and training process. All of them are perfectly able to develop a Pratt & Whitney type of specialized training program; all are able to organize an operationally-effective system for training or retraining supervisors, even if in either case the resources of the institution do not permit quite the full development of a program or permit quite the shape of the program which the director would think the most efficient.

In general, leaders in the VTI system think that the expansion anticipated for the VTIs, which never took place in the 1970's, is still a realistic goal in terms of the numbers of skilled workers required by the Maine economy. Such an expansion would, of course, require a reassessment of financing devices that would in all probability require much more private enterprise participation in supporting regular programs, and therefore much less of a burden on the regular revenues of the state.

Program reassessment also requires being prepared to drop or significantly alter some programs, and VTI leadership seems to take this as part of the normal pragmatic process of decision-making.

But it also likely involves a certain amount of expansion or significant alteration of physical facilities for the various VTIs. In some cases, as with the KVVTI, this would be part of the expected and long hoped-for growth of the VTI to full stature.

B. The Maine Maritime Academy has for decades produced not only trained human resources for the American merchant fleet, but some of the most valuable technicians used in Maine enterprises. It continues today to serve as the same ladder of mobility for young Mainers, endeavoring to do so in a way that keeps up with modern technology and the modern understanding of sea commerce. The administration of the Academy has demonstrated great resourcefulness in making effective use of its funds for maintaining the quality of its programs. As with other Maine state campuses, the Maine Maritime Academy in recent years has succeeded in using its attractive installations as a way of generating additional income, in this case through the building and successful operation of a Conference Center that, during the summer months particularly, attracts hundreds of persons, a great many from outside Maine, for professional state-of-the-art and other similar programs of importance in the life-long professional and social development of the participants.

C. The value to economic development of a private sector in higher education is aptly demonstrated by the activities of the special-purpose institutions emphasizing two and four-year degree programs and other particular academic activities aimed at training or maintaining vocational skills, and doing so explicitly within a liberal-arts framework. Each of these institutions has its own unique history. Each evolved from being something

of an experiment, a marginal enterprise, to that of a significant professional establishment manifestly serving an important need and filling an important role in the community. Their presence and their history evidence the vitality of higher education in Maine. Their continued success demonstrates the fact that no one kind of post-secondary institution or set of institutions can completely exhaust the potential of higher education offerings in the state.

The leadership of these schools, and in particular that of Thomas, Westbrook and Husson colleges, demonstrated by their handling of the large numbers of students looking for a more practically-oriented liberal arts education during the boom years of the 1960's that they were capable of creating a climate of sophisticated learning, attracting conscientious and talented professors during a period of serious shortages of trained college faculty. Today's market situation is the equally serious one of fewer young people available for post-secondary training, reductions in federal funding for some college programs, and a threat to the financial ability of all students interested in an undergraduate or graduate education, resulting from recent and current recessions and the plans of the present national administration to abandon its student loan guarantee program.

Flexibility of offerings: Such market conditions are no more than accidental spurs to imaginative new programs in such institutions. Even before the present financial threats appeared, these schools were venturing beyond traditional frames of service delivery to bring educational opportunities to large numbers of Mainers who would otherwise find it practically impossible to improve themselves by education and training. Continuing education has long been one of the emphases of such schools, as well as education in subject areas and disciplines avoided or neglected by other post-secondary institutions. These schools in many cases retain a flexibility of self-image and

sense of mission that allows them to turn such images as that of a "university without walls" from idea into actuality.

Thomas College's move to establish a program for qualified employees of the International Paper Company is a case in point. For the most part very few of these workers seemed able or inclined to look for ways of getting an advanced management education through other institutions offering more traditional, on-campus programs. But the identification of a pool of International Paper employees willing to embark on a two-year degree program led to the organization of a teaching system that moved the Thomas classroom into the Jay offices of the plant. Employees are able to take two courses per semester by attending classes in Jay on two week-day evenings and to study under regular members of the Thomas faculty.

The tuition for such courses in higher than it would be were they offered by state universities, but International Paper has provided extensive reimbursements of the expenses incurred by the students.

Westbrook's experiment with its Week-End college modeled after the Alverna and Lindenwood #4 experiments in St. Louis extends this concept of non-traditional offerings. Their program is an attempt to set up a college on week-ends with its own distinctive qualities and attractions, existing within the main college and drawing on and in turn supporting the college's over-all program and academic and social life.

As is not uncommon in the life of a complex sector of human relations and social institutions, such post-secondary institutions as these, viewed at times as somewhat out of the main stream of higher education and as serving a peripheral constituency, are proving important propellants of innovative approaches to the organization and the delivery of educational services. They therefore play an indispensable role in the life of higher education as

a whole, both because they are part of the private sector of higher education and also because they are functionally more structured to serve as points of experimentation in the system.

D. There are then the private liberal arts institutions historically shying from too-close identification with career training. The three oldest, Bowdoin, Colby and Bates, fit this model most closely. Their student body is more certain and fixed in its characteristics, and the marketplace within which the colleges operate has a more national quality. Thus, the institutions seek to project an image defined in a national give and take in each generation over the appropriate way to structure the liberal arts curriculum and to teach students. The debates on these matters today are, like those of a century ago and throughout the history of western society's liberal arts training, related to changes in the society's economic, political and cultural systems, and to the different ways those changes are evaluated by the members of American society and American social institutions. The switch to the elective system in higher education a century ago was related to the emergence of the much more fluid American economy in the post-Civil War period and to the beginnings of American leadership in modern management theory and practice. The individualized, tutorial system of instruction set out as a model by Harvard and Yale half a century ago was an extension of this highly-individualistic orientation with its emphasis on the college not so much as a transmitter of a body of knowledge from one generation to another but rather as a provocateur of independent, critical and creative thinking.

As noted in the opening section of this report, these Maine colleges have historically had close ties with the Maine community through founders, alumni, donors and trustees. But it is also correct to say that their model has not included the emphasis on public service to the degree found in the state

university established as a land-grant instituion. Nonetheless, over the years, research on the conditions of Maine society and on the history and social structure of individual communities and organizations has been a feature of each institution's life from decade to decade.

Today these institutions see the challenge in continuing to attract to their campuses a good share of the most talented high school graduates in the country. This has meant a serious and often radical reappraisal of curriculum, teaching formats, and decision-making processes generally. The results have reflected not only the elements produced by the post World War II technological revolution, but the changes in social values and political outlook that have taken place in American society in the last quarter century particularly.

The result has been a greater emphasis on interdisciplinary or multi-disciplinary approaches to reality and therefore such devices as team teaching, interdisciplinary majors, and personalized programs of study. The over-all governance of the institution stresses a much greater participatory mode than was true a generation ago, emphasizing in particular student involvement in college committees.

Faculty research is extensively aided, and tenure and promotion decisions use national criteria and comparisons in evaluating faculty members. The local community is accepted as a legitimate and desirable place for faculty field work, and public service in the local, state and national communities is encouraged.

These institutions serve as important cultural resources in their region. They bring to the campus outstanding artists in the music and fine arts fields, and their lecture series, usually open to the public, provide an excellent opportunity for the interested citizen to be stimulated and provoked both on the political or social questions of the day and on the elements of controversies proper to individual disciplines.

While some of them provide tuition-free opportunities for classroom learning to senior citizens, it is rare to find other than 18-22 year olds in the classrooms of these schools. Summer or vacation-time institutions bring professionals to the campus, as with each spring's Management Institute at Colby (attracting nearly 300 Maine entrepreneurs each year).

All of these schools have an important impact on the cultural, economic and political life of the particular region, and of Maine in general. But it is clear from talking with leaders of these organizations that they see such activities as necessarily incidental to the main task of the school - the training of undergraduates 18 to 22 years old to a liberal arts formation in an atmosphere that assumes eventual intensive professional training and professional leadership, but downplays explicit pre-professional training.

These schools are respected, but beyond the relatively small circles of those directly associated with them they are largely benignly ignored. Policy makers rarely refer to them in considering legislation on higher education, even though in recent years studies of Maine higher education by various consultants have often remarked on the positive role they play in Maine, and on the need to effect greater linkage between them and other institutions of higher education in the public sector. They themselves seem to be oriented to Maine as a political and economic entity only episodically, and for the most part only when some particular action or proposal of the state government seems to pose an economic threat. Their relationship with other private and public post-secondary institutions can be characterized as friendly and social, but not involving any attempt at systematic, joint undertakings. Even a consortium of Bates, Bowdoin and Colby foundered a decade ago, though the TV station, WCBB, continues as a joint effort. There is occasional reference to such a recommendation on sharing of faculty resources as was made in the late 1960's by the Coles Report; and there is occasionally actual sharing, as the present

joint employment of a geologist by Bowdoin College and the University of Maine at Presque Isle. But by and large these schools live in their own world, providing, to be sure, the important export benefits mentioned earlier in this report.

That this posture is changing is evidenced by the organization in 1981 of the Maine Independent Colleges Association (MICA). The early meetings of this group indicate an awareness of the need to explore the nature of the total setting within which the Maine independent schools of higher education live and operate, and an interest in exploring ways of relating to Maine society in a somewhat more systematic way. There is also an increased awareness of the need for some additional effort to remind policy makers and the Maine public of the value of these schools, even as exporters, if only to try to affect images held by policy makers of these schools when they consider such questions as tax exemptions of private school property.

E. The University of Maine at Orono is a land-grant institution. As such, public service and research is a natural part of its endowment, an intrinsic part of its history, and an inevitable part of its future. Its faculty are oriented toward such research and service, while at the same time priding themselves on being part of a liberal arts environment in which good teaching is considered important.

The single most serious problem encountered in recent decades by UMO has been the low salary scale of its teaching staff, with the university consistently near the bottom of the national scale. This problem it shares with the rest of the University of Maine system.

But it also shares with the rest of the system the problem of adapting to the demands for research and public service by a Maine changing

demographicaly, socially and economically. The common problem is compounded for UMO by the pressures for development of a major second research-oriented institution in the metropolitan part of the state around Portland.

The need of the economy for a new mechanism for the training of the engineers required by Maine firms, both traditional and new, is admitted by all who have dealt with the problem. UMO at present is the only institution in the state having a program for engineering training at the bachelor level. This is a traditional day-time, week-day program. UMO has had difficulty maintaining this program in the face of serious losses of engineer teaching personnel recruited by private industry at much higher salaries than the university can afford to pay. How to maintain a viable, rele ant program for engineer training in one place seems difficult enough, let alone doing so in two places. The attempt to deal with the intricacies of relating needs present in several different parts of the state for such technical personnel has meant a great expenditure of time and energy.

This problem is also true in the area of training public administrators. The program at Orono run by the Bureau of Public Administration has been a valued one, and it has taken advantage of federal funds available for some years through the Intergovernmental Personnel Act. But, distant as it is from Augusta, it has not been able to work into the schedules and the needs of state government employees. As an expedient there has been a public administration program established in Augusta to provide opportunities for graduate work as well as undergraduate training, but as noted earlier, this has not managed to take care of the needs of state agencies, to some extent because it has not been supported by a staff mechanism for identifying needs and helping a "needs mentality" to grow among state senior executives.

There are imaginative undertakings at UMO to fashion research projects with the help of private enterprise financing. The success of these Sponsored

Activities is evidenced in the $9.4 million now being spent annually on such projects as cooperative extension and agricultural experiment programs, the surface science technology program, and the Quarternary Period Institute with its work in Antarctica. The value of UMO for such operations is evident in the fact that a critical mass of faculty, graduate students, and research staff is necessary for these projects to succeed. At the same time the momentum being generated for the funding of new projects indicates that it is possible to use this format as a way of attracting new private financing for projects that could involve not only UMO faculty and students, but faculty and students from other state university campuses, the private post-secondary institutions, and the VTIs. It is clear to the consultant that the work of UMO in this area merits support and an encouragement to extension into new areas or activity and into experimenting with the inclusion of project participants drawn from supporting public and private institutions.

The Center for Research and Advanced Study at the University of Southern Maine, with its corporate entities such as the Small Business Institute and the New Enterprise Institute aims at research and service to Maine industry and commerce in a similar way. The work of this center is bound to be affected by recent and projected reductions in available federal funds, and it is clear that private funding will need to be sought in order to extend and even maintain its work.

Like the other campuses of the state university, the University of Southern Maine grew out of a normal school that gradually evolved toward a liberal arts institution. The dominant note at each university institution today is the presence of a leadership that is trying to move these institutions into a new service mode for its region. A century ago it was obvious that the providing of teachers for the state's public schools was a major priority in the development of the Maine economy. The normal schools were

logical instruments for supporting the expansion of the American economy in a totally new mode. Today Maine needs human resources fashioned to meet the purposes of an emerging 21st century, technetronic economy.

The theme of the new public policy program being developed by the University of Southern Maine is the one dominating the work of the new USM leadership: "What is the nature of economic development in a state dominated by small companies in an underdeveloped setting?" It also is the theme that clearly moves the leadership of the other state university campuses. All of these campuses are characterized by the presence at their head of unusually dynamic and resourceful presidents with a sense of the new mission of these campuses, and with a considerable ability in each case to seize on natural opportunities in the structure and life of their institutions for moving the institution along to the total self-reevaluation necessary for the relevant use of human resources, and the relevant training of new human resources in the decades directly ahead.

This state university campus leadership is also aware of the fact that the interaction of the new economic mode and the old patterns in Maine life is producing a complex social and economic pattern throughout the state. The campus leaders are assuming that any project of the university must take into account this complexity and seek to relate the two patterns to each other in a healthy way.

The University of Southern Maine plans to continue and expand the work of the Center for Research and Advanced Study, and enrich the MBA program. In both cases the multi-disciplinary nature of the programs is an important element in their structuring and operation, as is the case with the Sponsored Programs operation at UMO. The orientation of the University of Maine, Farmington and the University of Maine, Presque Isle toward rural studies is similarly multi-disciplinary. The University of Maine at Presque Isle sees

itself with a mission as a regional university in a region in tremendous economic flux. The energy diversification movement alone has meant that Aroostook County is the site for a reevaluation of human and economic resources. The "Total Tree" concept alone requires extensive realignment of thinking and management practices in the forestry industry. At the same time new mining possibilities and a revived interest in the strengthening of the potato economy all raise new possibilities for university/economic enterprise cooperation.

The Chancellor of the over-all University of Maine system has encouraged each institution's total re-evaluation of itself, giving to each campus annually money which constitutes an Academic Planning Fund. The key organizational question for all the state university campuses: "How does one restructure and rethink traditional service modes on a campus like UMPI, UMF, UMM, or USM?" is one requiring support facilities for the campus leaderships.

The Chancellor has encouraged an increased emphasis on the sharing of resources among institutions, and there is considerable interest among the university campuses at Machias, Fort Kent and Presque Isle in cooperation in the ecology area. USM and UMA are developing a Bath-Brunswick center as a cooperative venture and SMVTI and USM have been working for some time on the York County Community College operation in the southern part of the state.

Similarly UMPI's Nursing Program, which is an associate degree program is tied in with USM's bachelor's program in Nursing, and there are arrangements encouraging two years of study in English and French at UMPI and then a transfer for the last two years of study at Orono. It should also be noted that UMPI is the coordinator of courses at Loring Air Force Base where there are more than 300 FTE students enrolled this spring.

The consultant visualizes as a natural possibility an idea already being discussed in state university circles of a Washington County development program set up as an inter-university operation for a limited time, and aimed at bringing together in a multi-disciplinary organization academicians from several of the campuses (perhaps both public and private), leaders from the private economic sector, and public officials to help the Washington County region reconceptualize itself, formulate its needs, and move toward organizing a strategy, a logistical mechanism, and a set of tactics for moving toward the sensible modernization of Washington County.

Exemplifying the attempt of the university campuses to themselves live a different psychology and project a different image is the switch of several toward what is called in one institution the "Integrated Day." At UMPI for instance the university is operating from 8 A.M. to 10 P.M., with many classes scheduled during the noon hour in the hope of attracting people who have full-time jobs in the area and would otherwise be unable to take advantage of the campus' opportunities.

In the case of each campus there is, of course, a different history and different tradition to be dealt with in moving into a new form of organization and operations. Effecting change in any institution as complex as a university, with in particular the heritage of professorial autonomy and academic freedom putting the teacher at the center of the academic decision-making process, demands a supple, open leadership. The movement of each university to the kind of relationship to the economy and society suggested in these observations, without seeming to be simply a "service" instrumentality of either private enterprise or the state government, will depend on the ability of its leadership to induce in the mind of each member of the university a model of the region, the economic structure and process, and the university that seems fulfilling and challenging. This requires not only natural leadership talent, but staff resources and seed money as well.

VI. TRAINING AND EDUCATION IN THE STATE GOVERNMENT

The history of employee training and development in state government, and the history of state government liaison with universities to advance this training is sparse.

There has been a certain amount of "skills" training in departments concerned with law enforcement, conservation, transportation, and forestry, often aided by federal funds. The Bureau of Public Administration at UMO, as noted above, has made an effective effort at developing relevant programs of training, mostly short-range modules for managers in state government (in addition to the extensive array of programs for officials and employees in local governments). But as the federal funds on which these have largely depended have been curtailed, the projects have begun to disappear.

Until last September there was not, to anyone's historical knowledge, a training officer in the state government. Training in state government appears to have a low legislative priority, and specific department training budgets appear in jeopardy whenever there is any pressure for pruning. programs such as the Human Services Training program for case officers appear to be particularly interesting targets for such cuts, even though the general wisdom about case-worker training is that it is one of the most emotionally-demanding occupations in the state service, that staff turn-over appears very high, and that skills training serves not only to strengthen the technical ability of the case-worker to deal with clients but also to aid the case-worker's morale significantly.

There is a general lack as well of career-advancement training in the state government. Very little money goes, for instance, to leaves of absence for further professional study. Certainly in recent years the amount of money available for this purpose has declined.

To both university and state government officials now concerned, and in a first-line position to do something about the state employee education situation, there seems to have been in the past very little contact between the state government and UMA in looking toward a common understanding and approach to the needs of state employees for relevant professional and personal education. At the time of the writing of this report, it was reported that a Liaison Committee was shortly to be set up to improve this communications situation. The state would also help UMA in the making of an education-needs assessment of the state government.

The State Personnel Office sees a need for more short courses in general for public management practitioners, and also for more executive-oriented courses. A short management-accounting course and a management-oriented computer-technology course are given as examples of what is needed. The State Personnel Office is eager for UMA to be more evident as an "on site" training opportunity, providing instruction in the general work area.

The State Personnel Office's training focus at this point is on the supervisor/manager level. Here the concern is to build a system that will encourage and support administrators throughout the system to strengthen both immediately-applicable skills and the fundamental conceptual framework on which depend long-term flexibility and competence in handling new problems in changing contexts.

The consultant's discussions with a broad sample of public administration practitioners, personnel officers, union officials and academicians indicate that the fresh review and practical, innovation-oriented search by educational leaders for ways of delivering sophisticated services to the state government community are being welcomed throughout the state government, and are likely to result in the generation of a whole new atmosphere of

participation by state employees in university studies. This will require some form of tangible encouragement to state employees. "Educational leave" opportunities for a few hours a week, classes in state office buildings, and at least partial reimbursement of tuition for study at public or private post-secondary institutions seem clearly among the essential items that need to be considered.

From the higher education point of view, offering educational opportunities at the post-secondary level in a fashion appropriate to the differing needs of state employment at different points in their careers, and in terms of varying and multiple development requirements, will demand continuing the current "fresh look" at the organization of the curriculum and at the modes by which courses are offered. It will also suggest experimenting with such devices as team-teaching, in which academicians and qualified administrators can join in shaping and teaching a particular course or module.

Underlying all this, of course, are such general problems as the number of academicians available, the weight of their teaching and administrative burdens, the reasonableness of their compensation, and the opportunities they too have as professionals for refreshment, professional development, research, writing, consulting and other forms of public service.

In shaping new approaches to these particular problems, the variety of resources available must become more evident. VTIs and private colleges are likely to be seen as important points of opportunity for state employees' professional and personal development. The Governor and Legislature must be encouraged to establish reimbursement methods for state employee study in post-secondary institutions that will allow and encourage state employees to study at private institutions as well as public.

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Paralleling the interest in the private sector is the public sector interest in developing what to some will seem at first rather prosaic skills, such as writing a well-formed, coherent business letter, drafting a meaningful memorandum to superiors, or organizing and giving an intelligible presentation of an administrative policy , or procedural problem or phenomenon, to laymen in a legislative committee hearing or in another public forum. Many administrators see the chance for such training as among the most valuable they could be afforded in terms of professional growth. The pay-off for the state would be one of the highest of any investment they could make. That, judging by an advertisement in the MAINE SUNDAY TELEGRAM of February 21, 1982, USM is providing just such an opportunity is worthy of applause.

The consultant also notes that, while marginal to post-secondary main line of interest, the up-grading of the skills of some key clerical personnel could be aided by some attention from public and private institutions. Most administrators in the public service know of the dedicated employees who are invaluable to an agency's operations, and indeed vital to them personally, who in fact constitute the institutional memory of the establishment, but who are held back from recognition of their contribution and instead stay at an entry clerical level for pay purposes because they lack the formal education and training needed for promotion to the rank they merit. Some opportunity should be provided for these persons to gain the educational experience they need for recognition.

VII. ORGANIZED LABOR AND THE POST-SECONDARY EDUCATION SYSTEM

Measured by percentage of the work force organized, Maine labor unions are not a potent force. While only 25% of working people belong to labor unions in Maine, compared with the 23% national figure, this percent figure alone does not constitute the significant measure of organized labor's importance in Maine. Although not always visible in the general public, organized labor in Maine has played a significant, and continuing role in developing the State's educational program. Efforts in this direction have been largely concentrated in public advocacy and lobbying efforts directed at boards, Commissions, and the State Legislature.

While many small business leaders pride themselves on running an enterprise whose workers do not seem to need labor union representation for collective bargaining purposes, labor unions are a more common feature of the work situation in the larger enterprises in the state, and particularly in the enterprises that are a part of the new technology. Organized labor's ties with the Democratic Party mean that many of Maine's officeholder and candidates for public office make at least a gesture toward acknowledging labor's particular interests in Maine.

Most important, Maine's union leadership, at least those who are most prominent publicly, associate themselves with those national labor leaders who in the last decade have undertaken to infuse a new vigo into the thinking and action of organized labor's policy.

In the long run, labor sees the traditional apprentice system of training craftsmen as still the soundest method to rely on when modernized and related to theoretical materials presented through the VTIs.

For the central labor union leadership in Maine, post-secondary education programs should not simply be vehicles for providing particular companies or even clusters of companies with the labor trained to handle only tasks identified as immediately important and useful to those companies, no matter how attractive the coming of these companies to Maine or their staying and expanding here might seem, or how important to Maine's industrial future. Post-secondary education should not become a service arm of industry, in their view.

In socializing young Mainers to the work-place, educational institutions, so union leaders hope, will help these students to have some sense of the importance of organized labor's role in the shaping of the modern American economy.

The Labor Education Bureau at UMO is pointed to by labor leadership as a valued evidence of the interest of public higher education in the workplace as a site for significant human relationships, and for an opportunity for personal growth.

Labor leaders also urge that all the public campuses operate in such a way as to adapt their facilities for the working and leisure-time patterns of the present generation of Mainers. Subjects offered at hours more convenient to workers--usually meaning on week-ends; more short-term module-type offerings rather than long semester courses; more degree programs that can be finished through something other than long, week-night attendance.

Certainly labor leaders would welcome a more significant presence by labor in the councils that determine the policy of public post-secondary educational institutions. They recognize that the VTIs do have advisory boards and craft committees. But, by and large, they do not find these providing very much in the way of leverage in shaping an institution's policy

or program. Advisory boards and committees usually are just that and no more, they say. They would like to have some additional possibilities in guiding these institutions.

Overall, while there is some sense of recognition of the value to the Maine worker and organized labor of public post-secondary institutions, from the perspective of the labor leaders there is an important psychological gap separating the world of higher education--the administration, the faculty, the planning and implementation machinery--from the world of the trade union leader and, so the union leaders feel, from the world of the workingman.

CONCLUSION

There are sectors of Maine industry and business which at first glance seem little changed from descriptions of what they were half a century ago. But on closer examination it is evident that Maine business enterprises respond to the competitive environment in their part of the economy. Some industries nationally and even internationally have lagged behind others in altering techniques of production or styles of management. Maine companies in these industries have maintained their position. They have relied on the engrained Maine sense of obligation to produce a high quality product and to perform tasks as quickly as efficiency permits.

In all enterprises there is a concern for training, at least by peers and foremen. And in many Maine enterprises, the training process is clearly one of the key components of a quality production system. The whole world of in-house private training by Maine companies is one of the most striking aspects of the contemporary Maine economy. Maine business is training-oriented. Where the Maine plant is part of a national corporation, employees benefit from the broader opportunities for development offered by headquarters programs. But even small, locally-owned enterprises look for ways of upgrading worker skills. It is also clear that the education, prior training, and continuing training of the work force is one of the important preoccupations of Maine business leaders. These leaders are managing to keep Maine competitive nationally and internationally by constantly reappraising markets, restudying production techniques, and re-examining the structure of their enterprise and the nature of organizational structure and processes. As they do this, it is evident that they also re-examine the development and training needs

of their workers. It is impossible to determine the amount of money spent by Maine enterprises on the educaton and training of their workers. Almost every company is willing to assist a worker through tuition and subsidies to study at post-secondary institutions. Many degree programs of workers are financed in this way. Companies make no effort to engage in any scientific cost/benefit analysis of the value of their training program, seemingly satisfied that "there is no alternative to paying for training."

The participation of private and public post-secondary educational institutions in this process of re-examination and modernization of business education and training programs is often little more than fortuitous. The accident of an employee having been a student at a VTI and having come to know an outstanding instructor is often the happy link of his company to the working out of a program of training at the VTI in which the company workers can share. Many enterprises of considerable size and importance to the local economy have had little or no contact with representatives of Maine's higher education.

Concurrent with the modernization of Maine industry and commerce which is now transforming the Maine economy is the modernization of Maine post-secondary enterprises. Within the constraints of historical structures, often limited in their innovation by funding patterns and appropriations restrictions, but frequently spurred on by market pressures, both public and private schools are re-examining their relations with the Maine economy and society in general and with particular enterprises.

Some of the private liberal arts colleges have now become so national

in their orientation, drawing students from all over the country, that their concern and interest in Maine society seems limited. But even among these there are contributions in research, consulting and specialized teaching situations that are beneficial to maintaining the vitality and the openness of the Maine economy to new ideas and new techniques. Other schools, more career-oriented if private, and more explicitly charged in their mission with a concern for Maine society if public, have developed a market orientation that means a more intensive effort to make contact with actors in the regional economy and society and help "create needs."

The leadership of both private and public post-secondary institutions in Maine is characterized today by a spirit of institutional innovation and an enthusiasm for provoking re-examination of the status quo in individual enterprises and institutions in the society that is contagious.

Such changes in style magnify the effect of the limited resources available to so many of the post-secondary schools. The "thinness" of coverage of Maine higher education over the state is less evident under the impact of the present leadership of both public and private schools. The actions of these schools in increasing the opportunities for education and training with new curricula and new systems of delivery testifies to the value of a market-competition system of higher education.

The magnifying effect testifies to the value of all these types of schools, and suggest the wisdom of public policy being so fashioned that it supports positively the efforts of these schools to recast themselves in a format compatible with the emerging new economic order.

Conclusion

It is obvious from the comments of the officials of modern firms in Maine, as well as from the comments of skilled professionals working in Maine (and very often lately arrived), that the post-secondary institutions play a crucial part in creating a climate of learning and culture in Maine that is indispensable in attracting modern industry and in keeping skilled workers and professionals alert and up with state-of-the art developments in their field.

In addition, the changes taking place in the shaping of the mission of the Maine public universities means that the empty spaces of Maine's educational world have good prospects for being filled-in with the kind of instruction and cultural opportunities needed, called for, and sought by Mainers.

Not the least reason for their being supported further by public policy is that, taken together, all these post-secondary degree-granting institutions constitute indispensable ladders of social and occupational mobility for thousands of Maine persons, young and old, for whom without these schools there would be so little chance to be challenged, provoked, and stimulated to personal growth in unforeseen dimensions.

SECTION III

THE MAINE MODEL OF HIGHER EDUCATION IN THE TECHNETRONIC AGE

I. EDUCATION AND SOCIETAL CHANGE

The inevitable thrust of Maine higher education is toward a dynamic, supporting partnership with an emerging, modern economy. The economy and higher education are primary mechanisms in the transformation of Maine from a 19th century to a 21st century society.

Internally the dynamics of Maine higher education are today pushing educational institutions, each individually and also in relation to the others, toward using the specialized personal and material resourses of higher education in support of this emerging new society.

This orientation of higher education toward the economy and the emerging society replicates the earlier dynamic role of higher education in the shaping of Maine's society and economy in an earlier age. At every historical point the specialized function of higher education has expressed itself in a number of ways:

1) the training of the key specialists required by that age;

2) the refining of the ideology of the age;

3) the creation of mechanisms for spreading that ideology through the society as a whole, by way of language, symbols, and other devices that serve as common reference points in guiding institutional formation and operation; and,

4) the articulation and validation of the social values of that age.

In an age of transition such as we are now in, the post-secondary system like the society as a whole, will need special assistance and exceptional devices in order to reform itself and to create new linkages to the society.

The key initial functions of higher education in this age of transition are a) to act as a "creative disruptor" of society as it is; and b) to act as "facilitator" of the society trying to emerge. It is particularly the charge of the system to act as a critic and questioner of the existing society and of itself internally and as part of that society.

From the earliest days of higher education in the American colonies, the "public" or "private" character of particular instititions has been secondary to the assumption that all post-secondary education has public value, produces public benefits, and is a public concern. Public and private post-secondary institutions co-exist and intertwine in America in a fashion unmatched elsewhere in the world. They do so with mutual respect and with a history of cooperation and collaboration.

For any region the existence of a set of strong private institutions is in itself an asset. Attracting students from outside the region, they can be important generators of wealth, an exporter of services that makes them a significant, immediate, tangible economic asset to the region. Their mission is defined autonomously in terms of the psychological and material economic market place. The stimuli of the market has furnished in the past motivation for reform in substance and procedure in the private institution, and these have often been transposed to

public institutions. The reverse has also frequently been the case.

Public policy has historically provided practical public support to private institutions, most notably but not exclusively through relief of these institutions from the payment of real taxes on the property used for instructional purposes. Private institutions in turn have historically included in their projection of their public image an emphasis on service to the community.

Post-secondary education therefore is in this sense so integrated that any public policy aimed at its enhancement as a crucial factor in the healthy growth of Maine's economy must make some provision for stimulating the opening of private schools still further to Maine society and the economy. That policy should also be based on the assumption that a coordination of public and private institutional contributions to economic development is the most efficient approach to the organization of the intervention of post-secondary institutions into the economy.

It can be assumed in this model that the historic pattern of private institutions serving as important forces in the shaping of economic and social ideas and practices will continue. In fact there is every reason to believe that the normal pressures of the market place, psychological and tangible, will in the case of our profound late 20th century technetronic revolution, express themselves particularly strongly in moving private schools to maintain a realistic contact with changing social and economic institutions, and to playing a significant role in the shaping of the changes.

But at the same time it can also be assumed that there will continue to be a "diversity of gifts" among both public and private institutions, and that the encouragement of organizational and substantive diversity is a necessary and crucial part of public policy for Maine. The public resources of the state should be structured in such a way as to reward private educational institutions who undertake the fundamental self-reappraisal of their internal organization and life and of their relationship to Maine society and Maine economic life in particular. Certainly there should be encouragement to greater communication among the leaders and the teaching, research, and consulting counterparts of public and private institutions.

II. INSTITUTIONAL REEVALUATION

A. Internal Self-Reevaluation by the Institution

The institution must act as a "creative disruptor" of its own internal life, as well as being the "facilitator" of its own development.

To carry out these functions and serve these ends higher education needs special resources. It needs to have the aid of insightful leaders and support personnel able to help lead an institution through a lengthy and continuing reevaluation of its structure, internal decision-making process, and delivery of services.

Specific resources need to be allocated for such support services, and these must be provided with a recognition that what is involved is not the implementation of new programs tacked on to an existing structure, but rather is: a) the redefinition by the institution as a whole of what it is and what its relationship is to the economy and the society; and b) the redefinition by each staff member of the institution of the sense of his specialty in the light of modern demands. The teacher must reassess his pedagogy; he must reassess his function vis-a-vis the community; he must look for the most relevant ways of applying in the contemporary world his professional knowledge and skills.

Such a redefinition and reassessment is not easy. It involves what are for many people profound psychological adjustments. It also involves a very difficult, challenging, and creative act of redesigning the mechanisms, channels, and devices by which the academician deals with his world.

Beyond the definition of who the academicians or clientele are there is the matter of how the academicians can most effectively relate to that clientele.

Among other things the change of perceptions and the redesign of techniques by which academicians make their impact on society requires that every academician be given the opportunity to understand the logic of new modes of thinking being prompted throughout society by new technology. For example, not only computer specialists, but every academician needs to have the opportunity to understand what the computer is doing to the way society shapes and deals with its critical questions.

The "administrator" in this change-oriented situation also needs help in redefining the institution in his own mind and in redefining himself and his role in harmony with that institutional redefinition. In a world made fluid by the communications revolution, and prompting new questions set in new ways, the way an institution is governed requires reappraisal.

B. Emergence in Society of Need for Life Long Learning

The technectronic revolution has forced a basic restructuring of the Time relationship of the university to the community. In another day social change more often than not required generations to take place. This means that the university could carry out its education mission largely by feeding into the society the young of each generation, and counting on them to serve as instruments of change in continuity.

The rapidity of change in our time, and the depth of that change in terms of Americans' cognitive and emotional life, means that the university must become an ever-present educator in the lives of Americans. The "state of the art" concept applies not only to changes in the externals of machinery. Beyond this "training" aspect it also involves the sense of a continuing awareness and personal adaptation of the citizen, technician and professional to changes in fundamental modes of thinking. The assumptions about what makes human beings tick individually and as members of groups, the sense of fairness, the concepts of the role of the workplace in people's lives, the basic approaches to the organization of time and space, the fundamental ways of organizing a problem, of asking questions about nature and all reality--it is the rapid reinquiry and reformulation of these that marks the world of the skilled worker, supervisory manager, staff aide, and

leader in a public or private enterprise, just as much as it marks the world of every citizen.

It is this sense of "permanent education" that has exerted pressure on American universities to alter the time and place forms in which they deliver services to their clientele. It is this sense of "permanent education" that is changing the sense of who a university's clientele is. Further, it is changing the sense of "life-long" education from one that assumed further education as largely a leisure-time and leisure-oriented activity to one that perceives "permanent education" as a never-ending reevaluation of the substance of one's profession, skill or personal life.

The rapid changes in economic and social organization and modes of thought have blurred old lines of distinction among the skills and professions. The university must be responsive to the social need for helping professionals gain rapidly and effectively, in mid-career, those elements of an overlapping profession which they need to understand if they are to be

successful in dealing with their professional realities.

This means in some cases making it possible for a person to slide in mid-career and mid-life from one "profession" to another. Where once this would have been discouraged and denigrated as a flight of fantasy or a childish whimsy, it is now necessary as a way of providing to society those human bridges from one profession to another which are necessary for the integrity of each profession and its healthy interaction with other professions and skills.

It means also aiding in the process by which "professional" and "skill" boundary lines within a given profession are drawn and maintained. It means in some cases perhaps assistance in the redefinition of a profession.

The quality of contemporary life is forcing reappraisal of higher education as an educating mechanism from yet another perspective. At the time of the Reformation the monasteries were called upon to open themselves and become relevant to the rapidly-changing Renaissance community. So now higher education is being called on to open itself to the community and make itself relevant to a society whose members are under strong personal pressure to rethink the fundamentals of psychology, metaphysics, moral philosophy, and the natural sciences, and to relate their understanding of the humanities to these.

As is true from his perspective as a professional, so from his perspective as a person today's energetic craftsman in whatever skill or profession is demanding the opportunity for a serious reappraisal of these fundamentals under a competent academic guidance, one that will help him upgrade his knowledge in these areas and move him into new ways of thinking about them, and about himself.

There is a close, indeed inexplicable relationship between an institution's helping to maintain the quality of life of an enterprise so that it becomes an efficient, competitive 21st century operation, and a university's helping individual employees in that plant be relevant in their own estimation to 21st century America. In either case the ability of higher education to serve these needs has a great deal to do with not only whether these persons and establishments remain competitively efficient, but with whether such energetic establishments and such persons come to Maine and stay in Maine.

III. CREATION OF NEW LINKS WITH THE ECONOMY: DEVELOPMENT OF A NEW MARKETING SENSE BY HIGHER EDUCATION

The blurring of boundary lines among the professions also necessarily blurs the boundary lines among post-secondary institutions. In a particular way it is of the essence of being a post-secondary institution that training and education relate to each other. The difference between institutions lies in great measure in the mix. But the blurring of lines between education and training which is a feature of our times means that the opening up of the post-secondary world to the society requires a close collaboration among all post-secondary institutions in an area.

The ideal form of post-secondary relation to the growth of the economy is one that allows a particular, structured need to be dealt with--in research, consulting, and instructional modes--out of a pool of human and material resources provided by all the post-secondary institutions in a given region of the state.

This means some form of mechanisms by which such service, of aid of institutions as an integrated part of their operations, will be provided with the least amount of coordinating costs.

The theme of such collaborative activity, as indeed the theme of any such academic venture into relations with private and public entrepreneurs must be "needs creation." The nature of the times is such that a principal problem is one formerly taken for granted in a more stable era--the definition in systematized form of what is often simply an "apprehension" or

vague sense of a "problem." The "needs assessment" approach is a survival from an older day. "Needs creation" is consistent with higher education's function of "creative disruption" focused on at the opening of this sketch of a Maine model.

Regional development within Maine can be profoundly influenced by educational services of public and private post-secondary institutions working together. Such cooperation can be facilitated by regional educational consortia existing as communications and service facilitators.

The aim of such cooperation should be the provocation of needs reviews by entrepreneurs in the private and public sectors; the indentification of resources among the private and public post-secondary institutions in the region for research, consulting and instructional programs to be aimed at the economic sector; and the organization of such services in a form and according to a schedule most likely to benefit the relevant employees in the economic sector.

Whatever the size may be by which a "small business" is defined, Maine remains very much the home of small businesses. It is also particularly the home of small businesses founded and run by Mainers. More than complex enterprises these businesses need the support of post-secondary institutions. Their resources rarely allow for training and development of their work force beyond the rudimentary level of peer guidance in machine operation and in maintenance of safety practices. In the competitive world of American enterprise, Maine's small business needs Out-Reach support from post-secondary institutions that will assist in both educating and training, and in insuring that "state of the art" opportunities are available.

IV. CREATION OF NEW LINKS WITH THE SOCIETY: FACILITATING NEW FORMS OF SOCIAL ORGANIZATION

Higher education has the responsibility today, as it has had since its founding, to be a prime change and control mechanism in western civilization, of acting as a "creative disruptor" of contemporary society.

Any society needs help in channeling the forces of change so that a healthy, logical development of new social standards and new social control mechanisms takes place. Ideally academicians perceive cognitively what are at first only intuited by most people in society. It is the historic responsibility of the academicians, and of those professionals such as lawyers and doctors who traditionally retain close ties with education, to prompt the questioning of existing patterns and the articulation of reasonable options for change.

It is also the responsibility of these educational forces to facilitate the structuring of new forms of social organization that will make for the most effective and least disruptive change of habits, expectations, and procedures at the work-place and throughout society.

Among the critical concerns of all those working in education to enhance the quality of Maine's economy must be the maintenance of the specific attributes of Maine people that constitute so important a factor in the coming of new business and industry to Maine. Particular emphasis needs to be put on research and consulting in ways of understanding that way of life so that it can be perpetuated through systematic formation of the character of Maine children. The Work Ethic on which Mainers pride them-

selves survives through reinforcement. In a time of rapid social change, it would be well for educators to understand the elements of that Ethnic as a way of helping children and adults to internalize it more effectively, and as a way of developing supportive mechanisms at the work-place and in the community for that Ethic.

The post-secondary mechanism is crucial for the building of a vibrant, efficient state administrative sector. There is increasing likelihood of devolution of responsibilities to the state by the federal government for the operation of most critical social services. This will sharpen the challenge to the state to create effective organizational devices for the administration of these services, to provide the opportunity and the incentive to the state's workers to strengthen their capabilities in the handling of their present jobs, and to stimulate and aid its workers to test their innate abilities with ventures into new and untried areas of expertness.

The post-secondary institutions have the capacity to aid in the formation of a deeper understanding of the possibilities which modern technology and the values underlying it can be used to strengthen the work-place as an important point of personal growth. The assessment of the work-place, the shaping of tools to improve it, and the communication to the community at large of the essential qualities of that work-place must therefore be mult-disciplinary in nature. Not only the natural sciences and economics must be used for structuring and describing it, but the humanities as well. The post-secondary institutions, working together, and each in its own

appropriate way dealing with this matter, can help workers and all citizens understand the work-place and the whole community as a moral enterprise whose qualities can be nurtured, and that can be understood effectively both in terms of balance sheets and in terms of creative literature.

FINDINGS

On relating the Model to the factual material derived through statistical and field research, the consultant identified the following central findings characterizing the present condition of the interface between the state's economy and its world of higher education institutions:

I. The public and private institutions engaged in post-secondary education in Maine constitute an important and indispensable economic asset to Maine. In some cases they are large, immediate and direct generators of export wealth; in other cases they are instrumental in creating new wealth through research and consulting services; beyond this they have a long-term impact on the growth of a competitive, quality Maine through the role played by students they educate in keeping Maine economy modern and competitive; in all cases they are, for the Maine students and others they educate, ladders of social and occupational mobility, facilitating the discovery and exploitation of the potential of individual Maine people for productive, creative economic activities:

A. Measured in terms of quantifiable economic impact, Maine higher education is one of the most important of Maine's economic sectors:

1. In 1981 post-secondary institutions added a direct value of $528 million to the Maine economy. Applying a conservative "multiplier effect" to include the "ripple" or induced effect of this activity, the total direct and induced value of higher education activity to the Maine economy rises to about $1.5 billion. This makes post-secondary education one of Maine's major industries, at least sixth among these industries.

2. Maine's independent, degree-granting institutions are important positive contributors to Maine's balance-of-payment position in national trade. In 1980 their expenditures in Maine, in salaries, wages and payments for services and supplies, totalled nearly $160 million. A very large proportion of this money came from out-of-state. This figure is almost the total of wages paid to employees in all of the state's lumber and wood-products enterprises. It makes this segment of the higher education sector an important "export industry".

3. Independent post-secondary institutions in Maine continue to save the Maine taxpayer at least $6 million per year, which would have been the value of the state subsidies required to give them a public post-secondary education.

B. At the same time the following statistics indicate the weakness in public recognition of even such an immediately-measurable impact of education on the state, and a weakness in support of higher education as a significant domestic and export industry:

1. Maine's public post-secondary tuition is 9th highest in the nation;
2. When compared to the state's total appropriations for higher education, Maine's tuition is 7th highest in the nation;
3. Maine's public post-secondary system, in terms of a national "system cost index" is one of the least expensive in the nation to run (38th);
4. Weighted in terms of this "system cost" factor, and adjusted for inflation, Maine's per student appropriation has dropped over the last two years by 3%, a mid-way response by the state compared to the rest of the country;
5. Maine ranks 43rd in the amount of state appropriations per student; when factored together with the expense of the system as noted in (3), Maine still ranks 38th in appropriation per student in the public system;
6. Per capita, Maine's support for public higher education puts it 49th in the nation; per $1,000 of income in the state, its support puts it in 44th place; over the last two years its appropriations have increased by 17%, but this puts it 30th in terms of the biennial effort made; while higher education appropriations have increased 118% over the last ten years, this increase is 48th in size nationally. When this 10-year effort is adjusted for inflation, Maine is still 48th in comparative appropriations effort;
7. Per capita appropriations for the Maine public university system total about $40 a year, 35% below the national average. While Maine is the second poorest state in the union in terms of tax capacity, and though it makes a tax effort 18% above the U.S. average, nonetheless Maine allocates a very low proportion (7.5%) of tax revenues to public higher education for operating expenditures (45th in the nation);
8. Maine has a smaller proportion of college graduates in its adult population--13.6%--than any other state in New England (by 1.5%);
9. In every year but one in the 1970's, Maine received fewer federal R&D funds than any other state in New England.

C. Also of significance in any analysis of the relationship of Maine's higher education system to the economy is the fact that statistics made available within the last month indicate that in relationship to high school graduates, Maine's public post-secondary enrollments put it at 48th place in rank in the nation, even though the number of high school graduates per 1,000 persons in the whole population puts Maine in 12th place in the nation.

Maine also occupies a low position among the states in the proportion of its students pursuing graduate programs.

II. The conjunction of long-term demographic factors, a serious deterioration in the general level of national economic activity, and changes in national/state funding and program relationships in the implementation of the President's New Federalism program suggest: a) the likelihood of serious financial strain for all post-secondary institutions and the possibility of the consequent closing of some independent degree-granting institutions; b) serious problems for students, including those in the traditional "export-value sector" of higher education, in financing their education, with the possibility that many of these will not be able to continue their education unless state or private alternative funding possibilities are developed.

A. There appears to be a strong chance that in the next decade some of the state's private post-secondary degree-granting institutions will experience such financial strain as to be forced to close;

B. Changes in the terms of federal support for the financing of the education of individual students through student loan programs could create serious problems for some post-secondary educational institutions in Maine and for their students. They are likely to produce some consequences for all. The beginning of the 1982-1983 school year could mark an emergency in some cases for both institutions and students.

III. We have talked with a representative selection of Maine business leaders; presidents, directors and senior staff and faculty of public and independent post-secondary education institutions; representatives of organized labor; state administrators with higher education responsibilities; state development and state planning specialists; and state personnel administrators.

We summarize our experience in this field research as follows: Despite a new orientation by public and independent post-secondary institutions toward the delivery of educational services, there is nonetheless a serious and widening gap between the post-secondary education world and the world of Maine production

and service activities. It is a gap marked by an extensive sense on the part of entrepreneurs and employees that post-secondary institutions in the state are, with a few exceptions, hardly relevant to their needs. It is a gap which if not reduced could seriously threaten the continued modernization of the Maine economy.

We have identified the following key facts about the way in which higher education views itself and the economy, and the way in which economic actors view higher education in Maine:

1. While over-all post-secondary education in Maine is beginning to move out of its isolation from the Maine currents of a rapidly-changing economy and society, higher education institutions (with VTIs generally an exception) are still perceived by many entrepreneurs and employees as remote, inaccessible, and only marginally-relevant to their needs as economic actors and as individuals seeking personal growth;

2. Maine's small businesses, which constitute the overwhelming proportion of Maine enterprises, particularly need and express a strong desire for help in the continuing training of their management, supervisory and line employees;

3. Maine post-secondary education is a spectrum of institutions running from the proprietary technical schools to the specialized graduate schools. But, Maine's post-secondary education institutions, public and private, together do not constitute a cooperative network. This lack of network appears to prevent the healthy interaction of these institutions in developing significant cooperation in using scarce human and material resources in a shared way to the benefit of institutions, the public and students. Such cooperation, and the accompanying support services of the state to encourage and guide it, are indispensable to the full realization of higher education's potential for influencing the continued healthy development of Maine's economy and the maintenance of its competitive national and world position;

4. Private specialized post-secondary institutions often serve, under the stimulus of the competitive market, as the scouts and "point men" of higher education in testing out new possibilities in the market, new places at which to test and feel out the possibilities for organizing post-secondary studies and in trying out new teaching techniques, experimenting with new methods of scheduling classes and structuring academic programs. They are vital elements of a market oriented system.

5. Maine's traditional four-year liberal arts colleges tend to focus on the internal strengthening of traditional programs of instruction oriented toward an almost totally residential out-of-state student body, and in an

environment where the assumption is both implicit and explicit that the function of the college is the formation of the whole person, and where specifically vocational preparation is discouraged. While they engage in a certain amount of research, consulting and out-reach teaching programs in their regions of the state, and while there is a long history of their faculties taking part in the political life of the community, these colleges have only a limited flexibility in developing teaching programs specially oriented to the non-full-time, traditional college student;

6. Within the state university system an important concern, along with strengthening research and consulting capabilities, is the search for a new mission for the old teacher-training oriented campuses. Dominant in this sector is the emerging self-image of these institutions as "creative disrupters" of traditional educational structures and processes and the often-radical review of mission, strategy, internal organization, service delivery methods, and relation to the local region's economy and society. However, the final form of any of these features is nowhere yet fully defined;

7. The programs of public post-secondary institutions suffer from the lack of discretionary funds for the undertaking of new programs, courses, workshops or other forms of direct teaching activity. The VTIs are handicapped by a line-item budget arrangement that requires legislative approval of new programs, though there is freedom in the self-sustaining "adult education" section to provide new courses. Universities are free to shift resources so as to experiment with new program activities, but are more constrained in their "adult education" area;

8. Non-traditional students are emerging as a significant group in enrollment figures. Projections indicate that adults registered in degree or non-degree programs on a part-time basis will become an attractive group to institutions faced with declining traditional enrollments--i.e., 18-22 year old full-time students;

9. There is an abundance of training and development activities in the private sector of Maine's economy. While these are not spread uniformly across the private sector, neither are the activities confined simply to the newer, high-technology enterprises. Entrepreneurs too frequently do not find complementary opportunities for their employees in education and training programs in nearby public and independent post-secondary institutions;

10. There is considerable agreement among entrepreneurs, shared with organized labor, that the apprentice system, tied in with a sound vocational-technical training, is one of the best ways of developing a pool of skilled workers who will serve as flexible resources for the expansion of the Maine economy along healthy lines;

11. Maine private enterprises are generally sympathetic to the idea of private enterprise assisting financially in the operation of post-secondary education programs potentially of particular value to their employees; and they are generally willing to assist to some extent employees undertaking a degree program or a course of value in their work assignment now or in the future;

12. The availability of trained Maine workers is considered by new industry as an important plus in the location of new enterprises into the state. The state's ability to develop programs jointly with industry for training workers in specific skills as a part of a package to attract a particular enterprise to Maine seems especially appealing.

13. A secondary but important consideration of new industry and its professional workers, particularly high-technology industry coming into the state, appears to be the quality of the intellectual and cultural environment in the state and particularly in the commuting region in which they are located;

14. There is a need to insure the vitality of Maine's economy and society over the long run by emphasizing the continual strengthening of critical thinking skills as a fundamental part of higher education and as a foundation for the building of technical skills.

15. One example of the difficulty of relating education services to worker needs lies in the disappointment of many employees in not being able to undergo a basic engineering training leading to a bachelor's degree through other than a day program at Orono.

16. The area of nursing education remains one of the most complex and controversial of all post-secondary education areas;

17. The education and training of Maine state employees is at an embryonic stage.

RECOMMENDATIONS

Our Model of a Post-Secondary Education System for Economic Development in the 80's has highlighted the above facts as critical findings. Therefore, to further aid in the more efficient delivery of educational services for the benefit of a healthy Maine economy, and consistent with our findings, the consultant makes the following recommendations:

I. CREATION OF A TASK FORCE TO REVIEW AND REEVALUATE MAINE'S PUBLIC POLICY TOWARD HIGHER EDUCATION AND ITS ROLE IN THE SHAPING OF A MODERN MAINE ECONOMY.

EMERGENCY ACTION

A. There are important possibilities of significant changes in the structure of the Maine economy during the next ten years. Equally, the life of the higher education world in Maine is today marked by the beginnings of a ferment of thought and activity of significant proportions. At the grass-roots, faculty and administrators are evaluating the relationship of individual institutions to the economic and social life of Maine and of their respective region, and are looking for new, relevant and effective ways of organizing educational services to meet the needs of professionals, technicians and entrepreneurs in such a way as to aid the creation of a competitive Maine economy preserving and manifesting the vitality and utility of traditional Maine values.

B. The conjunction of more and more grave national economic problems and of important alterations in the financial and programmatic relationship of the national and state governments appears to pose serious threats to the ability of many students to undertake or continue their higher education and suggests the possibility of problems for individual post-secondary educational institutions for maintaining their financial position.

This is the moment for a review of the actual and potential role of the state government in the shaping of the interaction between economic development and higher education, for making recommendations to the Governor and Legislature on public policy toward higher education in the next decade, and particularly on the organization of logistical support for the higher education sector; and for making recommendations to private and public institutions in the light of this review, reappraisal and reevaluation.

C. Accordingly, the Governor and Legislature should be asked to endorse, authorize and support the appointment and operation of a Task Force on Maine's Public Policy on Higher Education and the Economy in the '80's, made up of citizens

and of political, educational, economic and social leaders. This Task Force should make the evaluations suggested above and, in time for action by the 111th Legislature in 1983, make its recommendations for public policy action to the Governor and the Legislature.

The Task Force should be encouraged to keep the following principles in mind in shaping its investigations, findings and recommendations:

1. A set of modern post-secondary institutions providing a fundamental education in critical thinking and a basic and continuing training in professional and technical skills are essential to Maine's economic and social development;

2. Continuous, life-long education and training at the post-secondary level are critical to the competitive edge of the Maine economy;

3. The planning of higher education service delivery and public planning for regional and state-wide economic development must be integrated; business and labor must be more fully involved in a cooperative effort of planning and funding economy relevant programs;

4. The free-marketplace in post-secondary education is an essential element in the maintenance of a flexible, economically-relevant set of higher education institutions;

5. Maine students should have a practical alternative of carrying on their higher education in either independent or public institutions;

6. The financial stability of independent degree-granting institutions should be protected by the state government wherever feasible.

II. ESTABLISHMENT OF THE POST-SECONDARY OVERSIGHT COMMISSION.

The existence of a public body acting in a consultative and advisory capacity to aid the development of Maine's post-secondary education system is essential to Maine's ability to continue its development of a modern, healthy economy.

A. Therefore, within the guidelines developed by the Task Force, there should be established by the Legislature a Post-Secondary Oversight Commission made up primarily of businessmen, labor representatives, educational leaders and citizens active in Maine's economic life.

The development of the Commission's functions should be guided by the following emphases:

1. Serving as a key institution in aiding state government, private enterprise, labor and the public and independent post-secondary institutions to

develop the maximally effective use of post-secondary resources in advancing a modern Maine economy;

2. Acting as an aggregator, depository and distributor of basic data on the structure and operation of all Maine post-secondary institutions;

3. Monitoring economic developments in the State with a view towards aiding post-secondary institutions, individually or collectively, to develop programs in response to these trends and developments;

4. Cooperating with the State Development Office, the Maine Development Foundation, municipal development agencies and other public and private groups to attract appropriate industrial, commercial and service enterprises;

5. Reviewing periodically the financing system for public post-secondary institutions.

6. Advising the Legislature and the Executive Department on any proposed legislation or administrative regulations that would affect the ability of post-secondary institutions to serve Maine's economy and cultural climate.

B. The Governor and Legislature should act to authorize a staff speciality within the State Planning Office concerned with the whole system of Maine post-secondary education, public and private. Among its functions, the State Planning Office desk on post-secondary education should be charged with serving as the state's coordinator for the collection of data on the organization and operation of the post-secondary education system and its particular institutions, and as the repository of basic data on the system and the institutions making it up. Such action will assure that public policy makers will have statistically-reliable information on which to judge developments in higher education and from which to project the impact on higher education and the economy of proposed legislation or administrative measures. The Executive Officer of the Post-Secondary Oversight Commission shall serve in this capacity while holding the staff position in the State Planning Office with particular responsibility for integrating planning in higher education with planning for the state's economic and social development.

C. The Commission should explore the feasibility of organizing regional educational and economic development foundations uniting business, labor and education in a cooperative effort to fund innovative programs of public and independent institutions, working cooperatively, aimed at improving the quality of work in Maine enterprises and the productivity of their employees. The Commission should use such foundations to assist individual and consortium efforts to "reach-out" in

an innovative fashion to workers and managers on-site or in their own neighborhoods.

D. The Post-Secondary Oversight body should, in particular, undertake to encourage the development of additional apprentice programs in each region by aiding contacts between enterprises or groups of enterprises in the region, labor union leaders, and entrepreneurs in private industry or commerce.

E. The Post-Secondary Oversight Commission, the Commissioner of Education and the Chancellor of the University should work together to encourage cooperative ventures in each region composed of public and private colleges, universities and VTIs, with the purpose of aiding educational and economic development. This should be done in such a way as to help each institution retain and strengthen its own sense of identity, with its particular primary market and its particular substantive emphases and pedagogical techniques. Emphasis should be placed on the use of ad hoc, temporary, "throw-away consortium" type organizations.

III. OTHER PRIORITY ISSUES

A. In the Vocational-Technical Institute system, the role of the committee of VTI directors, with its chairman as spokesman, should be enhanced so that the committee can serve as the focal point of initial decision-making with regard to long-term system planning, biennial funding processes, and liaison with other public and independent institutions, within the framework of the legal responsibilities of the Board of Education and the Commissioner of Education. They should be assisted with funds to develop new programs more rapidly, particularly those aimed at helping Maine's "indigenous", small businesses to upgrade the skills of their present work force and assist explicitly in the training of future employees. Entrepreneurs individually or in groups should be encouraged to assist in the financing of such training.

B. The Legislature and Executive branch should work positively to assist independent post-secondary institutions to survive and grow in a free-market system of higher education. Such a policy should ideally include a measure of state financial assistance consistent with the significance of this sector as one dominated by "export enterprises".

C. Continued aid should be given state university campuses to develop as regional centers of intellectual and cultural life and as ladders of opportunity, with a strong "out-reach" capability. Particular attention should be paid to the future role of those campuses presently in relatively remove and economically-

isolated sections of the state to become significant centers for stimulating the economic and cultural life of their areas.

D. Early action is desirable to establish a comprehensive system of state employee training and development.

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